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THE LIBRARY
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CATALOGUE

OF

AFAYETTE COLLEGE.

1902-1903.

LAFAYETTE COLLEGE PUBLICATIONS.

THE COLLEGE BEAUTIFUL: or Lafayette College, Some Pages of its Past, Pictures of its Present, and Forecasts of its Future; an illustrated Handbook, fully describing college life at Lafayette. 63 pages of text and 24 full-page half-tone views and portraits. Sent post-paid for 15 cents in stamps.

THE LAFAYETTE. A College Periodical, published by Students weekly during College year. \$2.00 per annum.

THE TOUCHSTONE. Published monthly by Students. A Literary Magazine of 24 pages. \$1.25 per annum.

THE MELANGE. A College Annual, published by the Junior Class. Circa 200 pp. 8vo. \$1.00.

THE MEN OF LAFAYETTE. 1891. Three thousand biographical sketches of Alumni. 400 pp. 8 vo. \$2.50.

ADDRESSES of Drs. Remsen, Drown, Howe, and Hart at the Dedication of the Gayley Hall of Chemistry and Metallurgy, April 5th, 1902; with plans and portraits. 29 pp. 10 cents.

ADDRESSES in honor of Prof. F. A. March, LL. D., L. H. D., on Founders' Day, 1895. Portrait and list of his contributions to literature. 120 pp. 12 cents.

CHRISTIAN EDUCATION. Inaugural Address as President of Lafayette College, by E. D. Warfield. 10 cents.

ANNUAL CATALOGUE. Published in January. This is sent to all the Graduates and former Students of the College who furnish their post-office address for the purpose, and to any other applicant on receipt of 4 cents in stamps, to cover postage.

Sample copies of Examination questions for admission, and an Entrance Certificate blank will be sent on request.

Applications for Catalogues should be made to

*The Registrar, Lafayette College,
Easton, Pa.*

Thomas Apple Clark

[*Supplement to Lafayette College Catalogue, Page 130.*]

LAFAYETTE COLLEGE,
PRESIDENT'S OFFICE.

To the Alumni of Lafayette College :

In the catalogue issued this year you will note with gratification many evidences of improvement and growth. The appearance of the Campus has been greatly changed since the "March Field for Athletics," consisting of seven acres has been added to the West side of the premises, and the Dormitories situated along the Northern part of the grounds have been rebuilt. Knox and Fayerweather Halls, in particular, are commodious and beautiful, and in every respect are designed to promote the comfort of students who occupy them. The same remark applies with almost equal force to the five adjoining Halls.

The Van Wickle Library and its store of new books ; the Gayley Hall of Chemistry and Metallurgy with its excellent scientific equipment, and the Brainerd Hall, so lately completed and devoted wholly to the culture of the moral and social interests of the students, each fitly testify that our Alma Mater is well keeping up with the spirit of the times.

All these surroundings of the College are more than ever favorable to habits of study, and adapted to the one end of seeking to bring out what is best in young men.

The increase in the entrance requirements, the scope of the studies now embraced in the curriculum, and the thoroughness with which they are pursued, together with the considerable number of elective studies offered reiterate the same story of progress.

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Easton, too, has made progress. A graduate who has not been here for a decade or two, would greatly enjoy seeing the growth of the City, the extension of its many new industries in which thousands of men are employed; its stately Carnegie Library (controlled largely by Lafayette Alumni) and the convenience of its trolley lines that extend for miles in all directions. He would find here a population of about forty thousand, one-third thereof being in Phillipsburg, and College Hill the most populous of the twelve wards of Easton. If he were to visit our old college town he could renew the memories of his student life at Lafayette while noting these many changes and improvements, and enjoy as never before the charming scenery and other features that have given Easton so wide a reputation.

More than one thousand volumes have been added to the Library during the past year, and many Alumni have made valuable contributions to the collections and cabinets.

During the past year from the estate of the late Rev. Andrew M. Lowry, of Watsonstown, Class of 1850, the College has received a bequest of \$2500.00, with which to establish a perpetual scholarship for the use of a student preparing for the ministry. Mr. Benjamin F. Barge, of Mauch Chunk, who died in October, 1902, left in his will \$2500.00 for Prizes for excellence in Mathematics. The interest arising from the large bequest of Mrs. Appley, of Honesdale, is now available for the aid of deserving students, preferably those who purpose to become physicians.

In the list of students given in the catalogue many names of sons and grandsons, of nephews and younger brothers of previous "men of Lafayette" give the strongest proof of the affectionate interest that our Alumni retain in their Alma Mater. It has often been observed that the Alumni

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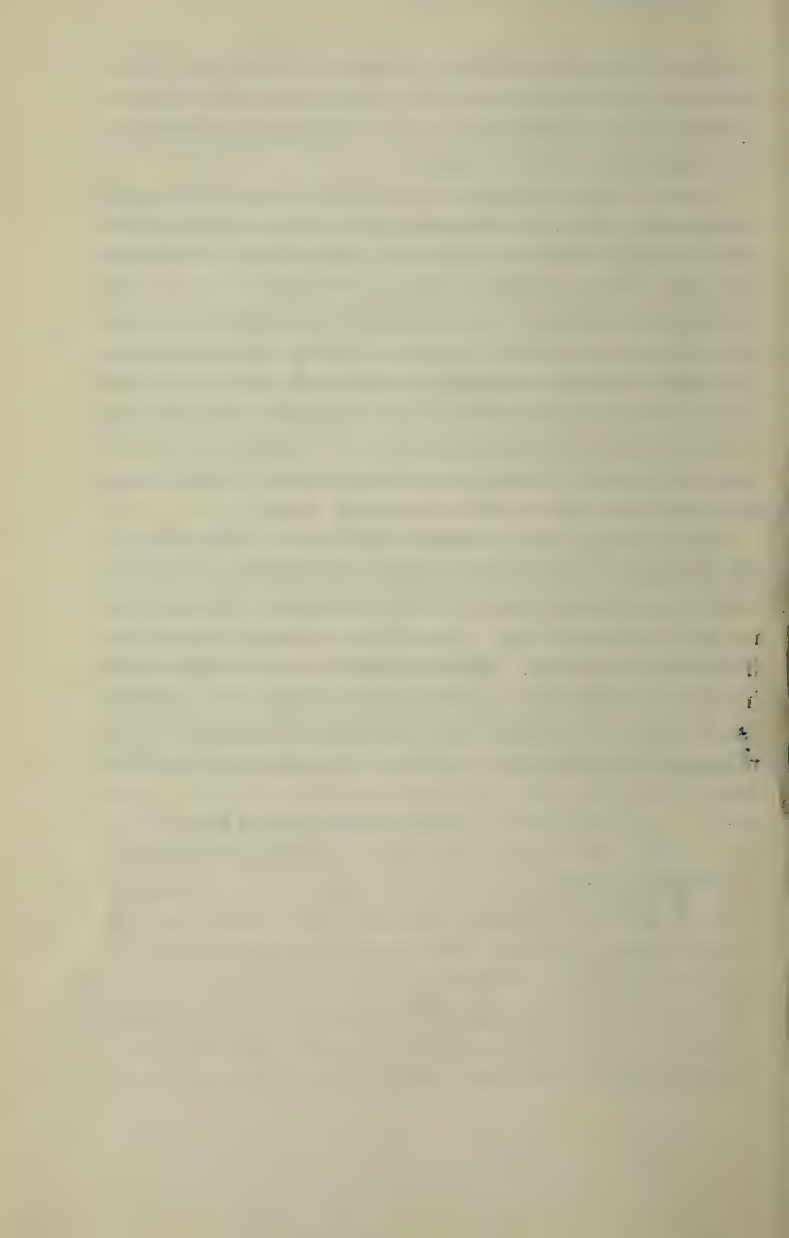
of this College are peculiarly zealous in their love for it, that they heartily recognize the debt due to the Institution at which they had their early training and often evidence their pleasure in aiding it.

It seems not yet, however, well understood by many college men who are otherwise well informed that all the scholarships, or half scholarships, granted to students in reduction of their tuition, entail just so much loss to the funds of the College; and the deficit thereby caused must be provided for by the Trustees. Aid is, however, given to worthy students cheerfully,—as it ever has been—but only in cases of real need and upon the recommendation of some one who is known to us. We shall be glad to send catalogues to young men whom you may wish to have examine them with a view to coming here.

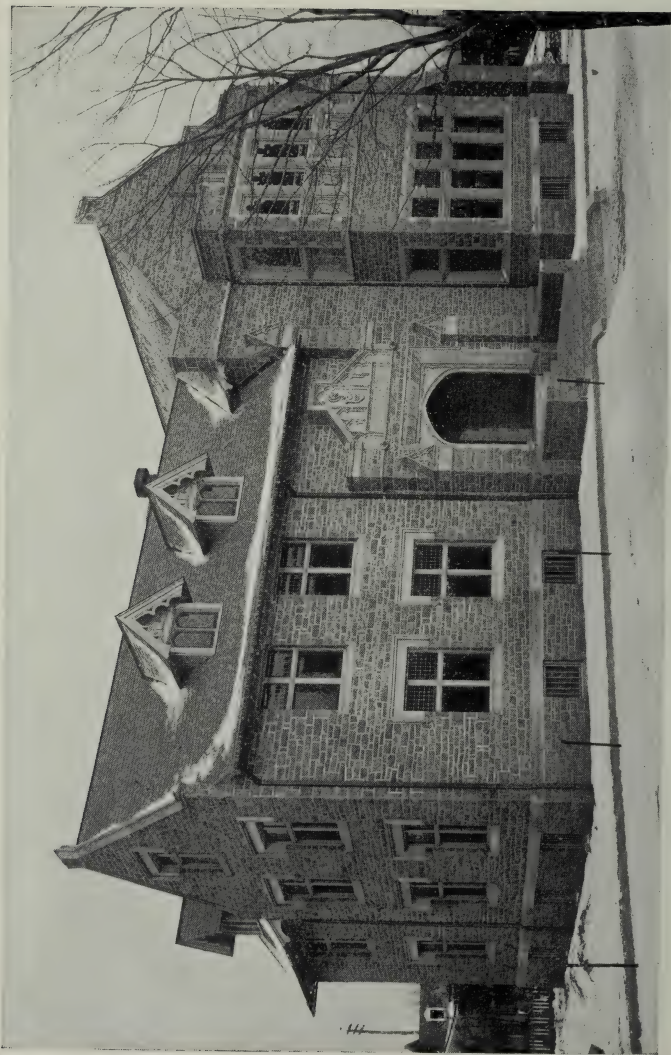
After eleven years of earnest devotion to the work of the College by President Warfield the Trustees cordially voted him a leave of absence for the current year, extending to September, 1903. A period of rest was deemed an imperative necessity. He is at present in Germany with his family. Word comes from time to time with pleasing assurances of his improved health and readiness for the resumption of his active duties at the opening of the Fall term.

W. S. KIRKPATRICK,
Acting President.

February, 1903.



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BRAINERD HALL,

Erected for the College Y. M. C. A., 1902, by James Renwick Hogg, '78.

CATALOGUE
OF
LAFAYETTE COLLEGE.

INCLUDING THE COURSES OF STUDY
IN THE
CLASSICAL AND SCIENTIFIC DEPARTMENTS

EMBRACING THE
SCHOOLS OF CIVIL, MINING, AND ELECTRICAL
ENGINEERING, AND OF CHEMISTRY.

SEVENTY-FIRST YEAR,
1902-1903.

EASTON, PENNSYLVANIA.
1903.

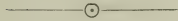
LAFAYETTE COLLEGE.

MOTTO: *Veritas Liberabit.*

COLORS: Maroon and White.

SEAL: The head of Lafayette
encircled by a wreath and the
inscription, *Lafayette College,*
Easton, Pa.

CONTENTS.



	PAGE
Calendar	5
Lafayette College	6
Board of Trustees	7
Faculty	8
Admission	11
Courses of Instruction in all Departments	16
The Bible—Physical Culture	17
Classical Department:—	
The Course of Study	19
Mental and Moral Philosophy	20
History and Political Science	22
Rhetoric and Elocution	26
Languages and Literatures	27
Mathematics and Astronomy	34
Physics	36
Chemistry	37
Biology	37
Special Courses in Biology for Students preparing for the Study of Medicine	39
Geology	41
Synopsis of Classical Studies	43
PARDEE SCIENTIFIC DEPARTMENT:—	
General Courses:—	
Latin Scientific Course	48
The Course of Study	49
General Scientific Course	52
The Course of Study	57

Technical Courses:—	PAGE
Courses common to all Departments	59
Mathematics, Surveying, Drawing, Logic, Rhetoric and Elocution, Mineralogy, Physics, Chemistry	59
Civil Engineering Course	68
Summer School of Engineering	71
Mining Engineering Course	78
Electrical Engineering Course	85
Chemical Course	90
General Information	97
Arrangement of Lectures and Recitations	97
Attendance	97
Examinations, Standing	97
Graduation, Commencement, Degrees	98
Religious Instruction	102
Lectures	103
Terms and Vacations	103
Buildings	104
Libraries and Reading-Rooms	105
Scientific Collections	110
Literary and Scientific Societies	111
Expenses	113
Bequests and Devises	118
Prizes and Scholarships	118
Recent Additions	123
Degrees and Honors Conferred, 1902	125
Commencement, 1902, Prizes	126
Alumni Associations	130
Students:—	
Graduate Students	132
Undergraduates	133
Summary	146

LAFAYETTE COLLEGE.

Lafayette College enters upon the work of the new century with every reason to feel that the hopes of the Founders, far back in the nineteenth century, have been realized. It has grown steadily and surely with the growth of the country. Its Faculty has won wide recognition and has grown in numbers. Its students are more numerous than at any time in its history. Its lovely site has been beautified by a noble group of buildings. In the last year of the just closed century a new era has begun in the erection of the Van Wickle Library and the reorganization of the dormitories. The Gayley Laboratory of Chemistry and Metallurgy, and a building for the Y. M. C. A., "Brainerd Hall," the gift of Mr. J. Renwick Hogg, were completed in the past year. With all its growth, Lafayette College remains in fact and in purpose a college; its aim is the education of men; its ideals are determined by moral as well as intellectual considerations; its atmosphere is distinctly Christian.

The College was granted its first charter March 9th, 1826. Its first exercises were held May 9th, 1832, under the presidency of Rev. George Junkin, D. D. The present beautiful site was first occupied in 1834. The College was taken under the care of the Synod of Philadelphia of the Presbyterian Church in 1850. In 1866, during the presidency of Rev. William C. Cattell, D. D., the Pardee School of Science was established by Ario Pardee, Esq. It is situated at Easton, Pa., at the confluence of the Delaware and Lehigh Rivers, and is easily accessible by a number of railroads.

TRUSTEES.

JOHN WELLES HOLLENBACK, <i>President</i>	Wilkesbarre, Pa.
REV. J. H. MASON KNOX, D. D., LL. D.	Baltimore, Md.
JAMES W. LONG	Easton, Pa.
HON. WILLIAM S. KIRKPATRICK, LL. D.	Easton, Pa.
REV. GEORGE C. HECKMAN, D. D., LL. D.*	Reading, Pa.
REV. ETHELBERT D. WARFIELD, D. D., LL. D.	Easton, Pa.
ISAAC P. HAND, ESQ.	Wilkesbarre, Pa.
JAMES GAYLEY	New York City.
ROBERT SNODGRASS, ESQ.	Harrisburg, Pa.
REV. D. J. WALLER, JR., PH. D., D. D.	Indiana, Pa.
ISRAEL P. PARDEE	Hazleton, Pa.
CHARLES B. ADAMSON	Philadelphia, Pa.
JAMES R. HOGG	" "
WILLIAM L. SHEAFER	Pottsville, Pa.
MCCLUNEY RADCLIFFE, M. D.	Philadelphia, Pa.
REV. LEIGHTON W. ECKARD, D. D.	Easton, Pa.
EDGAR M. GREEN, M. D.	" "
REV. WILLIAM C. ALEXANDER, D. D.	Washington, D. C.
CARROLL PH. BASSETT, C. E., PH. D.	Summit, N. J.
REV. WILLIAM A. PATTON, D. D.	Wayne, Pa.
COL. HENRY M. BOIES	Scranton, Pa.
JOHN MARKLE	Jeddo, Pa.
JOHN EDGAR FOX, ESQ.	Harrisburg, Pa.
JOSEPH DE FOREST JUNKIN, ESQ.	Philadelphia, Pa.
EDWARD J. FOX, ESQ.	Easton, Pa.
DAVID BENNETT KING, ESQ.	New York City.
NATHAN GRIER MOORE, ESQ.	Chicago, Ill.

* Died March 5, 1902.

SAMUEL L. FISLER, A. M., *Secretary and Treasurer*, Easton, Pa.

Of the above Trustees, Messrs. Long, '37; Kirkpatrick, '63; Heckman, '45; Hand, '65; Gayley, '76; Snodgrass, '57; Waller, '70; Pardee, '74; Adamson, '77; Hogg, '78; Sheaffer, '78; Radcliffe, '77; Eckard, '66; Green, '83; Alexander, '73; Bassett, '83; Markle, '80; J. E. Fox, '85; E. J. Fox, '78; King, '71; and Moore, '73, are Alumni of Lafayette College.

MEETINGS OF THE TRUSTEES.

Thursday, February 12th, 1903 ANNUAL BUSINESS MEETING.
 Tuesday, June 16th, 1903 COMMENCEMENT WEEK.
 Wednesday, October 21st, 1903 FOUNDER'S DAY.

FACULTY.

REV. ETHELBERT DUDLEY WARFIELD, LL. D.,
*President, Professor of History and Political Science.**
 (John I. Blair Foundation.)

HON. WILLIAM SEBRING KIRKPATRICK, LL. D.,
Acting President, ad interim.

FRANCIS ANDREW MARCH, LL. D., L. H. D., D. C. L., LITT. D.,
Professor of the English Language and Comparative Philology.

..... †
 (Jessie Chamberlin Professorship of Botany.)

REV. AUGUSTUS A. BLOOMBERGH, A. M., PH. D.,
*Professor of Modern Continental Languages and their Literatures, and
 Lecturer on European History.*

REV. ROBERT BARBER YOUNGMAN, A. M., PH. D.,
Professor of the Greek Language and Literature.

REV. SELDEN JENNINGS COFFIN, A. M., PH. D.,
 (James H. Coffin Professorship of Astronomy.)

JAMES W. MOORE, A. M., M. D.,
*Dean of the Pardee Scientific Department, Professor of Mechanics and
 Experimental Philosophy.*

CHARLES MCINTIRE, A. M., M. D.,
Lecturer on Sanitary Science.

JOSEPH JOHNSTON HARDY, A. M., PH. D.,
Professor of Mathematics and Astronomy.
 (George Hollenback Professorship of Mathematics.)

WILLIAM BAXTER OWEN, A. M., PH. D.,
Professor of the Latin Language and Literature.

EDWARD HART, PH. D.,
Professor of Analytical Chemistry.
 (William Adamson Professorship of Analytical Chemistry.)

JAMES MADISON PORTER, C. E.,
Professor of Civil and Topographical Engineering.

FRANCIS A. MARCH, JR., A. M., PH. D.,
Professor of English Literature.

* Absent on leave for the year 1902-3.

† Vacant by reason of the death of Prof. Thomas Conrad Porter, D. D., LL. D.,
 on April 25th, 1901.

WILLIAM SHAFER HALL, C. E., E. M., M. S.,
Professor of Mining Engineering and Graphics.
 (George B. Markle Professorship.)

REV. EDSALL FERRIER, D. D., LL. D.,
Professor of Moral Philosophy and Hebrew.

JACOB D. UPDEGROVE, A. M., M. D.,
Lecturer on Hygiene, Director of Physical Training.

EDGAR MOORE GREEN, A. M., M. D.,
Consulting Physician in the Department of Physical Training.

ALVIN DAVISON, A. M., PH. D.,
Professor of Biology.

FREDERICK BURRITT PECK, PH. D.,
Professor of Geology and Mineralogy.

AMORY PRESCOTT FOLWELL, A. B.,
Associate Professor of Municipal Engineering.

ALLAN ROBERTS, PH. B., M. S.,
Instructor in History.

WILLIAM DARLINGTON LITTLE, A. B.,
Tutor in Mathematics and Latin.

ALVIN CONVERSE SAWTELLE, A. B.,
Tutor in Latin and Mathematics.

HARRY HESS REICHARD, A. B.,
Tutor in German and Greek.

STANLEY EUGENE BRASEFIELD, C. E., M. S.,
Instructor in Mathematics and Graphics.

REV. JOHN FREDERICK LOUIS RASCHEN, A. B.,
Instructor in Modern Languages.

CHARLES LAZARUS BRYDEN, F. M.,
Assistant in Chemistry.

GEORGE ELWOOD FETTERS, E. E.,
Instructor in Mathematics and Drawing.

EUGENE ERWIN SIMPSON, A. M., B. M. E.,
Instructor in Electrical Engineering.

JOHN WILLIAM TURRENTINE, M. S.,
Assistant in Chemistry.

COLLEGE OFFICERS.

ROBERT BARBER YOUNGMAN, PH. D.,
Clerk.

SELDEN J. COFFIN, PH. D.,
Registrar.

AUGUSTUS A. BLOOMBERGH, PH. D.,
Curator of the Reading Room.

JAMES W. MOORE, A. M., M. D.,
Inspector of Buildings.

SAMUEL L. FISLER, A. M.,
Treasurer.

REV. JOHN F. STONECIPHER, D. D.,
Librarian.

EDWARD HART, PH. D.,
Curator of Gayley Hall, and Librarian of the Henry W. Oliver Library.

CLASS DEANS.

- SENIOR CLASS The President.
- JUNIOR CLASS Professor Bloombergh.
- SOPHOMORE CLASS Professors Youngman and Hall.
- FRESHMAN CLASS Professors Hardy and Owen.

LAFAYETTE COLLEGE.

ADMISSION.

Every applicant for admission to the College is expected to report at the College offices and register immediately on his arrival. Before registering he must submit to the Registrar a satisfactory certificate of moral character from his pastor or some other person known to the College authorities, a certificate of honorable dismissal from the last school which he attended, a statement of the studies which he has pursued and the course which he desires to pursue. His application having been approved he is admitted to the examinations. Examinations are regularly held on the day following the annual commencement day in June, and the day preceding the first day of the autumn term in September, and also on the first day of the second and third terms.

REQUIREMENTS FOR ADMISSION TO THE FRESHMAN CLASS.

Candidates for admission to the Freshman Class are examined in the following books and subjects. It is strongly recommended that candidates be prepared for examination on the requirements as specified. Equivalents will be accepted only when absolutely necessary.

A. REQUIREMENTS IN ALL THE COURSES OF STUDY.

GEOGRAPHY.—*Modern*: Political Geography or Physical Geography.

HISTORY.—*United States*: Johnston, McMaster, or Fiske, and Outline of General History.

MATHEMATICS.—*Arithmetic*: Complete, including the Metric System.

Algebra: Through Radicals and Quadratics (first thirteen chapters of Wentworth's College Algebra, or an equivalent).

Geometry: Plane Geometry entire; as in Wentworth or Loomis

ENGLISH.—*Grammar*: A general examination will be given without special reference to any particular text-book to test familiarity with paradigms and syntactical analysis, and the correct use of English idioms.

Franklin's Autobiography and *Milton's Paradise Lost*, Books I. and II.; to be thoroughly studied as to subject-matter, form, and structure, including the language used, as to its etymology, syntax, and prosody.

Prose Composition: The writing of a short essay will be required upon a subject drawn from the foregoing text-books. No candidate will be accepted in English whose work is notably deficient in point of spelling, punctuation, idiom, or division into paragraphs.

The works recommended for study by the Association of Colleges and Preparatory Schools of the Middle States and Maryland will be accepted in place of Franklin and Milton, as follows:—

1901-1905: Shakespeare's *Macbeth*; Milton's *L'Allegro* and *Il Penseroso*, *Comus*, *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton and Addison*.

In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

Reading: Every candidate must have read a certain number of works of English literature. It is expected that the reading shall be done under the direction of an instructor and accompanied by frequent examinations during the preparatory course, for which four years is appropriate.

The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books. In preparation of this part of the requirement, it is

important that the candidate shall have been instructed in the fundamental principles of rhetoric.

The books set for this part of the examination will be those recommended by the Association of Colleges and Preparatory Schools of the Middle States and Maryland, as follows:—

1901 and 1902: Shakespeare's *Merchant of Venice*; Pope's *Iliad*, Books I., VI., XXII., and XXIV.; *The Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Cooper's *The Last of the Mohicans*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

1903-1905: Shakespeare's *The Merchant of Venice* and *Julius Cæsar*; *The Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Carlyle's *Essay on Burns*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

B. ADDITIONAL REQUIREMENTS FOR THE SEVERAL COURSES. CLASSICAL COURSE.

GEOGRAPHY.—*Ancient Geography*.

HISTORY.—*Roman History* to Augustus and *Greek History* to Alexander.

LATIN.—*Grammar*: The Roman method of pronunciation is used.

Cæsar: *Commentaries*, four books, for a portion of which an equivalent in Nepos will be received.

Cicero: *Orationes*, seven.

Virgil: *Æneid*, six books; *Bucolics*.

Prose Composition: Daniell's, or equivalent.

GREEK.—*Grammar*: Pronunciation according to the written accents and in accordance with the preface to Goodwin's *Grammar* or Hadley-Allen's, sections 11, 14, 19, 20, 21.

Xenophon: *Anabasis*, four books, for a portion of which an equivalent in *The Cyropedia* will be received.

Homer: *Iliad* or *Odyssey*, three books; or

New Testament: *Gospels*, three.

Prose Composition: Collar and Daniell, or equivalent.

For admission to the—

LATIN SCIENTIFIC COURSE.

The requirements are the same as for the *Classical Course* except that for the *Greek* is substituted:—

NATURAL PHILOSOPHY.—The elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—A thorough knowledge of the Grammar and one hundred pages of simple prose.

For admission to the—

GENERAL SCIENTIFIC COURSE.

The requirements are the same as for the Classical Course except that both *Latin* and *Greek* are omitted, and instead of the Ancient Languages are substituted:—

SOLID GEOMETRY.

ALGEBRA AND PLANE TRIGONOMETRY as stated in Technical Courses below.

NATURAL PHILOSOPHY.—The elementary principles; and

GERMAN.—A thorough knowledge of the Grammar and one hundred pages of simple prose. Beginning with June, 1903, the requirement will be two full years of study.

TECHNICAL COURSES.

For admission to the schools of ENGINEERING and CHEMISTRY the additional requirements are as follows:—

SOLID GEOMETRY.

ALGEBRA.—Properties of quadratic equations; indeterminate equations; inequalities; ratio, proportion, and variation; arithmetical, geometrical, and harmonical progressions (chapters XIV., XV., XVI., XVII., and XVIII. of Wentworth's College Algebra, or an equivalent). This requirement begins with June, 1903.

PLANE TRIGONOMETRY.—It is proposed to make this subject a requirement beginning with June, 1905.

GEOGRAPHY.—Physical Geography.

NATURAL PHILOSOPHY.—Elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—Two years' study in GERMAN as above, beginning with June, 1903.

PARTIAL OR SPECIAL COURSES.

In addition to the courses above specified students may be admitted under exceptional circumstances to pursue courses of study of a special character not leading to a

degree. Such students are required to undergo such preliminary examination as may be deemed necessary to ascertain their fitness to pursue the proposed course, and when admitted they are subject to the same rules and regulations and the same examinations in the studies pursued as are other undergraduates. On completing their course they will receive, on application, certificates of proficiency in such courses as they have satisfactorily completed.

ADVANCED STANDING.

Candidates for advanced standing are examined not only in the preparatory studies, but also specially in the previous studies of the class they wish to enter, or their full equivalents.

Students from another College bringing certificates of rank and honorable dismissal are permitted to recite on trial with corresponding rank in this College, until there is sufficient test of their qualifications for admission to regular standing. They will, however, be examined on whatever studies of the course may not be in the curriculum of the College from which they come, unless there are full equivalents.

No student, whether from another College or not, will be admitted to the Senior Class as a candidate for a degree after the beginning of the second term.

CONDITIONS.

Students who fail to pass in a part of the subjects in which they are examined may be admitted upon the condition that they pass a satisfactory examination on such subjects before the end of the term next after that in

which they enter. The number of such conditions with which a student is admitted to the College will be determined in each case by a vote of the Faculty.

CERTIFICATES.

Certificates of the Regents of the University of the State of New York and of certain approved preparatory schools are received in lieu of examination for entrance. Certificates from schools must be signed by the Principal and certify only to work done during school hours. They should be filed with the Registrar before the entrance examination in June. Blank certificates will be furnished upon application. Wherever the certificate does not cover one or more of the requirements of admission or supply a satisfactory equivalent, an examination upon such subject or subjects will be required. Such certificates will not be received after one year from the completion of the period of study for which they are given unless an additional certificate of continued study accompany them.

MATRICULATION.

No student is considered a regular member of the College until after his matriculation, which takes place thirty days after his entrance. During the interval between his admission and matriculation he is, however, in all respects subject to the laws of the College.

COURSES OF STUDY REQUIRED OF ALL DEPARTMENTS.

All of the courses of study are so arranged as to provide for at least three lectures or recitations each week-day ex-

cept Wednesday and Saturday, which are half-holidays, there being no afternoon recitation. Wednesday evening is set apart for the Literary Societies, and in order to co-operate with their work the first exercise on Thursday morning is given to elocution. Every student is expected to conform to this arrangement of hours. Special students must arrange a schedule of sixteen weekly exercises. One recitation hour is regarded as the equivalent of three hours of field and laboratory work.

BIBLICAL INSTRUCTION.

The morning recitation in every class of all departments on Monday in each week is given to Biblical instruction. In the Freshman year a general view of the contents of the Bible and of each book is given, with special attention to chronology, history, and geography. The class is divided into three sections, instructed by Prof. Hardy, Prof. Hall, and Mr. Sawtelle. The text-books are the English Bible and Coleman's Geography of the Bible. In the Sophomore year the Acts of the Apostles is studied. The students in the Classical Course read the book in the original Greek with Prof. Youngman; those in the Latin Scientific in Latin with Prof. Owen, and the Technical divisions in French with Mr. Raschen and Mr. Reichard. Special attention is given to the lives and labors of the Apostles and to the founding of the Christian Church. In the Junior year the Epistle to the Romans is studied. The students in the Classical Course read it in the original with Prof. Francis A. March, and the students in the Scientific Courses, in German, with Prof. Bloombergh. The Epistle is studied with

reference both to language and doctrine with much care and iteration. In the Senior year a course, in which Uhlhorn's Conflict of Christianity and Heathenism is used as a text-book, is given during the first half of the year by the President, and during the remainder of the year in the History of the English Bible. In addition to these courses the Old Testament in the original Hebrew is offered as an elective study in the Senior year, and instruction in the history of the English Bible, its translations and its translators, its merits and its influence, is given. It is intended that the Bible shall be a central object of study throughout the course. It is dealt with reverently as the Word of God, and as the inspired and infallible rule which God has given to His people.

In connection with the study of the Bible, certain prizes were established by the Rev. Lyman Coleman, D. D., sometime Professor of Biblical and Physical Geography in Lafayette College. These prizes are awarded at the end of Freshman year. (See page 120.)

PHYSICAL CULTURE.

HUMAN PHYSIOLOGY.

The lectures on Health to the Freshman Class include the general principles of Physiology and Anatomy, and are thorough and practical, and illustrated by diagrams. Special consideration is also given to the bearing of the facts and principles upon Natural Theology.

THE GYMNASIUM.

The College has ample ball grounds, tennis grounds, and boating facilities, a light, airy, tasteful gymnasium,

thoroughly equipped with the best modern appliances, dressing-room, bath-rooms, &c., and uses a thorough system of physical culture, participated in by all the students, who are required to be in the Gymnasium at set times for class drill. The Gymnasium is also open at given hours for voluntary work. Before entering the Gymnasium each student must be examined by the Medical Director, and if it is found that the regular class exercises are not likely to be healthful for him, other exercises will be prescribed suited to his constitution and condition. All the exercises in the Gymnasium are under the supervision of the Director of Physical Training.

A fine athletic field has recently been purchased and equipped by the Alumni and the Easton friends of the College. It adjoins the campus on the west, and affords excellent facilities for all out-door sports.

All athletic sports are under the careful supervision of a committee of the Faculty, of which the Medical Director of the Gymnasium is a member. *No student is permitted to take part in public contests without written permission from his parents.*

CLASSICAL DEPARTMENT.

The Classical Department consists of the historic course in the *Arts, or Humanities*, and retains the regular character of that course, which has so long been regarded as the foundation of a liberal education. The course has a fixed curriculum during the earlier years, but in the latter part of the course latitude is allowed by the introduction of elective studies for the student to select such

studies as he deems the best preparation for his subsequent pursuits.

This Department being the usual preparation for the learned professions, including teaching and journalism, special regard is given to the necessities of these professions, so that in addition to being the thoroughly tried means of securing a broad and liberal culture and an approved foundation of Christian scholarship, it is particularly fitted to prepare men for the learned professions. It is also recognized as a desirable preparation for other pursuits, including scientific and technical professions, wherever the circumstances of the student will permit.

The instruction embraces a systematic study of the Bible and the Evidences of Christianity throughout the course, of the Ancient and Modern Languages and their literatures, together with Comparative Philology; Pure and Applied Mathematics; Physics, Chemistry, and the Natural Sciences; Rhetoric and Elocution; Logic and Metaphysics; History and Political Science; and Mental and Moral Philosophy.

PHILOSOPHY.

MENTAL AND MORAL PHILOSOPHY.

Professors March and Ferrier.

Mental Philosophy is a required study of Senior year, and is pursued under the direction of Prof. Francis A. March. The text-books used are Haven's Mental Philosophy and Baldwin's Psychology, but the students are required to work up the topics by self-examination, by the

study of the investigations of the most eminent authors, and by class discussions. Weekly written essays are also required of every student, in which he is expected to record the results of such special investigations.

Ethics is required during the first term of the Senior year. The text-book used is Seth's *A Study of Ethical Principles*. The course aims to outline the psychological basis of Ethics, the nature of the moral ideas, and the metaphysical implications of morality.

Theism is a required study during second and third terms of Senior year, the text-books being Flint's *Theism* and Hibben's *Problems of Philosophy*. The course seeks to expound the grounds of theistic belief, and to investigate the final problem of metaphysics, *i. e.*, as to the nature of Ultimate Reality. The anti-theistic theories are also taken up, critical attention being given to Agnosticism, Positivism, Materialism, and Pantheism.

Logic is a required study in the third term of Junior year. The text-book is Jevons' *Primer of Logic*. This is supplemented by lectures on Mill's theory of Induction, especial attention being given to scientific method.

The history of modern philosophy is offered as a Senior elective in the second and third terms. Lectures are given on the principal philosophers, from Bacon to contemporaneous thinkers. The lectures seek to exhibit the historical and philosophical connections of the various movements of modern philosophy, and to give a critical estimate of them. No text-book is used, but the students are referred to the writings of the masters themselves, and to some of the histories of philosophy, as *Erdmann*, *Uberweg*, *Windelband*, and *Falckenberg*.

HISTORY AND POLITICAL SCIENCE.

ANCIENT HISTORY.

Professors Youngman and Owen.

In connection with the courses in Latin and Greek a very careful survey is given of Ancient History, but especially of the history of Greece and Rome. The topics immediately connected with the authors read are given particular attention, but an attempt is made to bridge the period intervening, and as the authors represent the most important periods of the history of Greece and Rome the result is that the historical accent is rightly placed. Attention is given not merely to the political history of the various periods under discussion but also to the social, literary, and philosophical history of each epoch. The close relation which exists between History and Geography is recognized, and a careful study of Classical Geography forms a part of the course.

HISTORY OF EUROPE.

Professor Bloombergh and Mr. Roberts.

An elective course is offered in the second and third terms of Senior year, which begins with the fall of the Roman Empire and traces the rise and growth of European institutions through the Middle Ages. Emerson's *Introduction to, and History of, the Middle Ages* are used as text-books, and are supplemented by lectures and library work.

During the third term a course of lectures is given to the Seniors by Professor Bloombergh on the Origin and Development of the Institutions of Modern Europe.

These lectures begin with an inquiry into the causes of the Dark Ages, trace the influences which led to the Reformation and the Renaissance, and the influence of the new impulses upon modern thought and action. These lectures while dealing largely with the philosophical side of History are so related to the previous instruction as to rest upon known facts.

CONSTITUTIONAL HISTORY.

THE UNITED STATES.

The President and Mr. Roberts.

An optional course, especially designed to prepare for the required courses in the Constitutional History of the United States, is offered in the first term of the Junior year. This course consists mainly of prescribed reading, with written reports upon the history of the American Colonies, the relations with Great Britain prior to 1775, and the causes and consequences of the Revolution.

The required work begins in the second term of the Junior year with a course dealing with the Constitution from the point of view of its historical development. Fiske's *Critical Period of American History* is used as an introduction to this course, and it is accompanied by a critical study of several important constitutional documents, such as *Magna Charta*, the *Petition of Rights*, the *Articles of Confederation*, and the *Ordinance of 1787*. Then the Constitution is taken up section by section and studied with reference to its historical development and its subsequent interpretation and construction.

This course is followed in the third term of the Junior

year by a course dealing with the constitutional history of the first thirty years under the Constitution, which undertakes to investigate the more important constitutional questions of the early years of the Republic with sufficient thoroughness and care to give the student a firm grasp of a sound method of historical study.

The study of American institutions is interrupted in the first term of Senior year by a course in general constitutional history, but is resumed in the second and third terms with a wider outlook. A more detailed study is now given to the whole subject, with Bryce's *American Commonwealth* as an introduction and general guide. It is supplemented by lectures and discussions.

These three courses are designed to give a broad and intelligent basis for American citizenship, and to prepare the way for original investigation in American history. The Ward Library is rich in material for special studies, and every effort is made to encourage the student to make independent researches.

ENGLAND.

Some period in English Constitutional History is offered each year as an elective study. The period is usually one which is closely related to the questions arising in the history of the United States, and while studied for its own sake, its value as throwing light on American History is brought out.

GENERAL CONSTITUTIONAL HISTORY.

A course in general constitutional history is begun as a required course in the first term of the Senior year and continued as an elective through the second and third

terms. It begins with the origin of the State, and following the plan of Woodrow Wilson's *The State*, pursues the development down to the present time. The recitations are supplemented by lectures and reading, with written reports of investigations.

POLITICAL SCIENCE.

The President and Mr. Roberts.

This Department embraces courses in the elements of International Law, and in the origin and development of the State in the first term of Senior year, and in Political Economy in the second term of Senior year, and elective courses by Dr. March in Blackstone's Commentaries, and by the President in the elements of Jurisprudence.

The course in International Law undertakes to do little more than to exhibit the fundamental principles which govern international affairs, and by the study of a few important cases to show the method of diplomatic procedure. It is especially intended to give the students the information needed to understand current discussions of foreign relations. In the theory of the State, Prof. Woodrow Wilson's book is used, and is supplemented by lectures illustrating the analytical method.

The course in Political Economy at present consists of a rapid survey of the principles, and only limited time is given to the discussion of practical applications of economic theories. Special attention, however, is given to the questions which are vital issues of the day, such as Finance and the Tariff. The utmost care is taken to avoid the teaching of party politics under the guise of

Economic Science. At the same time the teaching in this Department recognizes the importance of inculcating honest views on the money question and the right of American citizens to know what can be said for the American policy of Protection both in the abstract and in its actual workings.

All these courses are supplemented by papers, essays, and debates. The Literary Societies and the public debates do much to stimulate interest in the class work, and to give it practical application.

RHETORIC AND ELOCUTION.

The course in Rhetoric includes earlier instruction and praxis in Diction, Figures of Speech and Style, and later in Invention and in the Principles of Rhetorical Criticism; and these applied to required practice in the writing of original essays, orations, and themes.

Besides the study of text-books, weekly written essays are required, and declamations in class or before the College. *Extemporaneous Speaking* is also cultivated. In those studies, such as Mental Philosophy, in which the recitation can be had by topics, students are required to take the floor daily and present an outline of the author's thought, with such additions as they choose in the form of a lecture to the class. Extemporaneous (unwritten) debates are also had in class. The Juniors, during the third term, and the Seniors deliver unwritten addresses on subjects of their own choice, instead of selected declamations. The other classes speak selected pieces. Great pains are taken to encourage the habit of simple and earnest communication of connected thought.

THE GREEK LANGUAGE AND LITERATURE.

Professor Youngman and Mr. Reichard.

The aim of the Greek course is to be thoroughly grounded in Greek forms, idioms, and syntax—to learn the composition of words, the formation of phrases, and the construction of sentences. In the earlier part of the course there is a daily lesson in the grammar, with a test of the student's ability to apply it to the text just read. Etymologies and English derivatives are constantly called for.

The best passages of the best representative authors are translated into the best attainable English. In poetry there is a study of Homer, Sophocles, and Aristophanes; in prose, of Herodotus, for history; of Aeschines and Demosthenes, for oratory. For ethical questions there is a study of Socrates in the *Memorabilia* and the *Apology*.

Attention is directed to Greek life, education, faith, religion, and habits of thought and expression, as compared with our own. The old Greek citizen and the modern American citizen are brought face to face.

Essays also are called for giving the results of the students' researches. When *DeCorona* is read there is a special class debate on the relations of Aeschines and Demosthenes with Philip. When Homer is read there are references to the Bible for comparison of faith, religion, and form of expression. There is an attempt to bring the students to an intelligent appreciation of the beauty and grace and force in Greek literature to cultivate the taste, regulate the heart, and discipline the mind.

THE LATIN LANGUAGE AND LITERATURE.

Professor Owen, Messrs. Sawtelle and Little.

It is the aim in this Department to give the students an intelligent acquaintance with the language, literature, and institutions of Rome, and qualify them for the efficient treatment of these subjects as teachers, or for the further scholarly pursuit of these and kindred studies after graduation if they should be so disposed. We try to unite accuracy in details with facility in reading within the limits of a reasonable range.

The authors read are those which present the Latin language and literature at different stages, but mainly at its best; and the method of pursuing them is based on the belief that the best way to master these great works of genius, whether in their linguistic or literary aspects, is by the minute and careful study of selected passages. Such passages are examined, therefore, clause by clause and word by word, the common matters of grammar and idiom coming first. In the earlier parts of the course there is a grammar lesson with each recitation, and the application of grammatical principles to the text in hand forms an important part of the daily drill. The elementary principles of phonology and a review of etymology and general syntax are thus treated in the Freshman year, and in the Sophomore year a more exhaustive study of moods and tenses and the formation of words. Then come questions of style, the author's habits of diction, his use of synonyms, rhetorical forms of speech, the arrangement of words, &c., and, if poetry, the significance of metrical forms.

Literary and historical allusions are looked up, also mythology, biography, geography, antiquities, everything in short which can help to clear up the author's meaning.

Aside from these incidental inquiries in connection with every text, various collateral branches of study are regularly pursued from term to term. There is the topical study of history in connection with Livy and Cicero (*De Oratore*); of antiquities in connection with Horace; of literature in connection with Latin Hymns and Tacitus; and of the history of philosophy in connection with Cicero (*De Officiis*).

A brief course in Roman archæology is also given, illustrated by an extensive collection of Roman photographs.

It is kept in mind, also, that the training in this Department should be practically helpful and valuable to those who are to speak and write the English language. With a view to cultivate the power of expression, besides the oral work of the class-room there are frequent exercises in writing, in which it is sought to faithfully render the author into the English of our literary standards.

In preparation for the course in Comparative Philology given in the Senior year by Professor March attention is called to the history of inflection, the origin and significance of the affixes of case, number, tense, mood, voice; to the physiology of speech, the regular weakenings of sound, and a comparison of forms in the Latin, both etymological and syntactical, with the corresponding forms in the Greek and English.

The Latin is pronounced according to the Roman method. Harper's New Latin Lexicon is used; Allen & Greenough's Latin Grammar is used as a text-book; the larger grammars of Madvig and Roby will be found helpful for references.

THE HEBREW LANGUAGE.

Professor Ferrier.

Hebrew is an elective study in the second and third terms of the Senior year. As preparatory to more advanced work, special attention is given to the etymological principles of the language, and also to the inflexions and laws of euphonic changes. To apply these principles, and to acquire a good working vocabulary, portions of Old Testament History are read, and translations made from English into Hebrew. The text-book used is Prof. Green's Elementary Hebrew Grammar.

ENGLISH LANGUAGE, COMPARATIVE PHILOLOGY.

Professor Francis A. March.

For training in speaking and writing English correctly every student is required to hand in two themes in every term of his college course. Many of them are read in class and criticised as time allows. In this work professors of all departments take part. It is desired that students in each department shall write on subjects connected with it in the words and phrases current among experts, and know the precise meaning of these words and phrases. In these matters the professors in each department are authorities.

The professors of foreign languages recognize that translation into English is training in English as well as in the foreign language, and written translations are required partly in the interest of English study.

The study of the language in literature is different from the training just described. Its immediate purpose is the interpretation of masterpieces, the rethinking of the thoughts of master minds. It needs all the philological knowledge which can be had to clear up and illuminate the language. Such study also furnishes the materials and invites the inductions of systematic and historical philology and theories of the growth of literature. It must be largely comparative study, and in the Classical Course it is thought best to defer it until the student has become acquainted with other languages. It is begun in the second term of Junior year with the study of Milton's "Paradise Lost." Anglo-Saxon is taken up at the same time and four recitations per week in each are prepared, the two languages being heard in immediate succession within a college hour.

In the third term Shakespeare and Anglo-Saxon are studied, and recited four times a week, as in the second term, and there are optional courses and prize examinations on Shakespeare in general, and English before Chaucer.

In the Senior year a general survey of English literature is made (two hours per week) in the second term. Four hours a week of the third term are devoted to Comparative Philology, summing up the results of former special studies and arriving at laws of language in general. For further details see page 56.

MODERN LANGUAGES.

*Professors Bloombergh, F. A. March, Jr., Messrs. Raschen
and Reichard.*

The work in this Department is based upon the view that the aim of the American college is not to make specialists but to give a many-sided, well-rounded education; hence the different branches of the curriculum must in their very nature be co-ordinated with each other and the time allotted to each limited. It follows from this co-ordination and from the limited time allotted to each of the several branches, that in the pursuit of linguistic studies in the modern Continental languages only such a method is possible that permits us in the time given to reach the result which it is proposed to achieve. This result is simply to give to the student the beneficial mental development resulting from a thorough linguistic training; a result formerly reached by the exclusive study of the dead languages and now sought by the study both of ancient and modern languages, either in conjunction, as in the Classical and Latin Scientific Courses, or by the modern languages exclusively, as in the General Scientific and Technical Courses. And, secondly, to acquaint the student with the masterpieces of modern literature, scarcely, if at all, inferior in literary value, and certainly not less important for the proper equipment of the cultivated scholar, than the works of the great masters of Greek and Latin. The method used may be regarded as a combination of the scientific and the historical methods. The scientific method being used to lay the foundation, and the historic to broaden and develop the results of the earlier method.

We propose—

(a.) To teach the present status of the grammar and vocabulary of the languages studied ;

(b.) To show how they acquired their present status ;

(c.) To introduce the study of the best writers of Germany and France in a progressive series, with special attention to contemporary literature, and, in a limited degree, to extend the same method to the literature of Spain and Italy ;

(d.) To trace the development and give some account of the principal writers whose works are studied.

In fine we purpose, so far as time will permit, to give careful and systematic instruction in grammar and phonetics, in the literature of the various important periods, together with the literary history of each epoch, with special reference to the German and French languages, but as far as possible keeping in view the relations between the languages, and particularly to English.

In instruction in grammar decided preference is given to the shortest possible text-books, such as Ahn's Synoptical German Grammar and Edgren's French Grammar. The ground of this preference is that a short grammar enables the student to begin reading the language at an earlier period, and the success of syntactical studies, which are but applied logic after all, depends less on the lifeless memorizing of rules of syntax than on the comments of the teacher in the class room.

The required study of French and German in the Classical Course is at present limited to a single term each, there being four recitations each week. An elective course in German and French is offered in the second

and third terms of the Senior year; and in the second term of the Junior year students may pursue Italian or Spanish.

It will be seen that the study of German and French is largely linguistic, though the amount of these languages taught is sufficient, with the previous information and training of the students in Latin, Greek, and English, to give a fair reading knowledge. Those who take the Senior electives generally possess a fair working knowledge of one or both of these languages.

MATHEMATICS.

Professor Hardy and Messrs. Little and Sawtelle.

The course in Mathematics embraces during the Freshman year the continuation of the study of Algebra, begun in the preparatory school (including a brief review of simple equations), to which the entire work of the first term in this Department (four hours per week) is given. In the first term Freshman year all have Algebra four hours per week. In the second term Division A has Algebra and Geometry each three hours per week. In the third term it has Geometry and Trigonometry each three hours per week. Division B has Algebra two hours per week and Geometry four hours per week in the second and third terms of the Freshman year.

In the Sophomore year Trigonometry and Mensuration occupy four hours per week during the first term. In the second term five recitations per week are given to the study of Analytical Geometry. The course is begun by the drawing of a large number of curves from their equations, so that from the first the student may see that

the properties of a curve may be studied by means of its equation. After that the demonstrations of the proposition usually given in the Analytical Geometries are constructed with the same strictness of reasoning, and every step in them is proven with the same logical rigor as in Euclid. A clear and correct figure showing every point and line mentioned in the demonstration is always required. It is hoped that at the conclusion of his demonstration the student shall see clearly and at once the meaning of every symbol in the equation obtained, and shall be perfectly sure of the truth of his conclusion. Training in clearness and accuracy of thinking, and in the effective expression of thought, is regarded as of the highest importance. Calculus is taken up in the third term of the Junior year, two hours per week being devoted to it that term, and two in the first term of the Senior year. The discussions of Differential and Integral Calculus are made as far as possible to illustrate the essential oneness of the two branches of the Calculus. A further course in higher branches of Mathematics is offered as an elective in the second and third terms of the Senior year. Field work in Surveying occupies a portion of the time during this term, amounting to an equivalent of one hour of recitation work in each week, that is, three hours of actual field work.

ASTRONOMY.

Professor Hardy.

The study of Astronomy is begun in the first term of the Senior year and continued through the second. It is illustrated by practical work in the Observatory with the

various astronomical instruments. The course includes a thorough study of the points and lines of the Celestial Sphere; a short discussion of the construction and use of the principal astronomical instruments; of Parallax and Refraction, and of the methods of determining Latitude, Time, and Longitude. Then follows a careful study of the Earth as a member of the Solar System; of the Moon; of the Sun, including the Spectroscopy of the Sun; of Eclipses; of the general laws and construction of the Solar System, and of the Planets and their Satellites. This is followed by a brief discussion of the methods of determining the Sun's Horizontal Parallax and a fuller discussion of Comets, Meteors, and the fixed Stars, including the Spectroscopy of these bodies. The course ends with a study of the general structure of the Stellar Universe and a discussion of the Cosmogony and the Nebular Hypothesis.

PHYSICS.

Professor Moore.

The studies in this Department in all the courses occupy four recitations or lectures a week for a year, beginning with the third term Sophomore year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments. In other subjects the study of the text-book is accompanied with illustrative lectures, aided by a valuable collection of apparatus and charts, which is continually enlarged and improved.

The course begins with an experimental demonstration of the fundamental principles of Statics and Kinetics in

connection with a mathematical treatment of the subjects. This is followed by very full lectures on Heat, Magnetism, Electricity, Sound, and Light. Daily written and oral examinations impress the laws and facts thus presented upon the student.

For the advanced studies of the technical courses in Analytical Mechanics and allied topics of Mechanical and Electrical Engineering, see pages 71 and 85.

CHEMISTRY.

Professor Hart and Mr. Bryden.

The study in this Department begins with a course of lectures on General Chemistry, combined with the study of a text-book. In connection with these lectures each student is required to work in the Laboratory under the direction of the Professor. In the Senior year an elective course in Qualitative Analysis is also offered. Students in full standing who receive permission from the Faculty may also work in the Laboratory outside of recitation hours, if they so desire.

BIOLOGY.

Professor Davison.

The work in Botany is entirely elective. A general course in practical, morphological, and physiological Botany is open to the Seniors in the Fall term.

The College Herbarium is extensive and particularly rich in North American species, ranking in this respect among the best in the country. In its creation Dr.

Porter was actively engaged for nearly half a century. It has been gradually built up by personal collection, gift, exchange, and purchase, and well represents the growth of this branch of the science in the United States during this period of time. It contains the type-specimens of the species described by him. A library, also, rich in the literature pertaining to the subject, has been accumulated in the same way, and the letters received in correspondence with distinguished naturalists have been preserved. For field work in Botany the region around Easton possesses unusually fine material.

During the past year the entire herbarium has been re-poisoned, reclassified according to Britton's Manual of Botany, and placed in new cases in a separate room of the Biological Hall.

The courses in Biology are elective only, and consist of work throughout the Junior and Senior years. They are open for election to Classical, Latin Scientific, and General Scientific students. In order to meet the double purpose of a professional preparation and general culture, the courses are so arranged as to provide in each the special knowledge required without sacrificing the ends of general culture and discipline, which is sought in all the undergraduate courses. Those not wishing to take the complete course should begin their work the third term of the Junior year. No one will be permitted to enter the course later than the first term of the Senior year, and those who begin the study in that year must pursue it throughout the year.

The work in this Department begins with the Junior and extends through the Senior year, one term being devoted to each of the following branches: Mammalian Anatomy, Histology, General Biology, Vertebrate Morphology, Human Anatomy and Physiology, and Embryology.

The course in Mammalian Anatomy includes the preparation and preservation of animals, both for museums and dissecting purposes, together with a comparative study of the various systems in the cat, dog, rabbit, and opossum, after the student has familiarized himself with the structure and relative location of the organs in a typical mammal. Dissections, demonstrations, drawings, recitations, and reports by the students serve not only as a valuable discipline in the use of language, manipulation, and accurate observation, but supply the investigator with a store of practical facts in logical order. Additional lectures and demonstrations are also given by the instructor.

The course in Histology is eminently practical, treating of the hardening, preserving, embedding, section cutting, and staining of all the important tissues, and giving a thorough knowledge of the use of the microscope. Each student is required to mount for permanent preservation at least fifty specimens, and to deposit with the Laboratory a sample of charts prepared from specimens thus mounted which he has used in his demonstrations and reports before the class.

General Biology is arranged to give a concise knowledge of the lower forms of animal and plant life, including a brief survey of Bacteriology. Special attention is

given to the life-history of the invertebrates and their economic relation to the human race.

Vertebrate Morphology gives an opportunity for the comparative study of the various systems and organs in the vertebrata. Amphioxus, petromyzon, carp, frog, turtle, pigeon, cat, and dog are among the forms dissected and otherwise studied. The manner of development of the animal kingdom is brought prominently before the student by specially prepared charts and diagrams.

Human Anatomy and Physiology are taught by experiments, drawings, reports, and recitations by the students, and lectures, demonstrations, and quizzes by the instructor. Actual dissection of the cadaver is not required. Instead of this, the study of the various organs of the human body preserved in alcohol, and the study of a life-size French manikin, serve to give the investigator an adequate knowledge of the structure and functions of the human organs.

In Embryology the development of the chick embryo at different stages is carefully studied. The eggs of aves, amphibia, and pisces are incubated in the laboratory, and investigated during their development. The study of Embryology is a fitting conclusion to the Biological series, as here one may see the entire history of the animal kingdom enacted in a single species.

A large laboratory, well equipped with microscopes, microtome, water baths, Koch's vegetation incubator, re-agents, numerous skeletons, &c., affords ample facilities for the above work.

Those taking the above-described course in Biology,

together with the required number of hours in Chemistry, Physics, and Botany, will be given certificates admitting them to the second year's work in the Medical Department of the University of Pennsylvania and certain other medical schools.

GEOLOGY AND MINERALOGY.

Professor Peck.

This course, which is also open to students of the General and Latin Scientific courses, begins in the third term Junior year with a brief discussion of rock-forming minerals and the way they unite to form igneous, metamorphic, and sedimentary rocks. This is a necessary preparation for the course in Geology, which continues as an elective throughout the Senior year. In this Senior elective course Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed, and the first term of the year is devoted to Dynamical, Structural, and Physio-graphical Geology. Class-room work is supplemented by excursions into the region about Easton, which abounds in a variety of features of great geological interest.

The second term of the year is devoted to Historical Geology, during which especial attention is paid to the succession of life forms. The work of the class room is supplemented by a careful study of an excellent working collection of fossils now in the possession of the Department.

The third term is occupied in practical field work in Geology, in mapping, and in constructing geologic sections of the region about Easton.

Among the teaching appliances of the Department may be mentioned an excellent study collection of igneous rocks, consisting of about eight hundred specimens, many of which have their corresponding thin sections for microscopic study. These are added to from time to time as opportunity affords. They are all accurately labeled. Also an equally good collection of about twelve hundred specimens, illustrating Stratigraphical Geology, all well labeled; numerous physiographical and geological maps; sixty-four large palæontological charts, made under the direction of Prof. V. Zittle, of the University of Munich; an excellent stereopticon, with about seven hundred slides, illustrating a great variety of geological and palæontological subjects; and numerous wooden, glass, and plaster models for class-room work in Geology and Mineralogy.

SYNOPSIS.

CLASSICAL COURSE.

FRESHMAN YEAR.

HOURS.

MATHEMATICS. <i>First Term.</i> —Algebra. A brief review of the requirements of admission and a continuation of the study of equations	4
<i>Second Term.</i> —Algebra, and Geometry, Plane and Solid	6
<i>Third Term.</i> —Algebra completed, Solid Geometry completed, Division B. Geometry, Trigonometry, Division A,	6
LATIN. <i>First Term.</i> —Livy: Books I. and XXI.; Latin Prose; Early Roman History, and the second Punic war	4
<i>Second Term.</i> —Horace: Odes; Prosody; Latin Prose	4
<i>Third Term.</i> —Horace: Satires and Epistles; Roman Antiquities. Throughout the year a review of Syntax and Etymology; exercises in written translation	4
GREEK. <i>First Term.</i> —Xenophon: Memorabilia; prose composition; classical geography	6
<i>Second Term.</i> —Herodotus: select passages; old Greek life	4
<i>Third Term.</i> —Homer: The Iliad; select passages from the first six books; Greek literature	4
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible throughout the year	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations, Themes, and Forensics are required.	

NOTE.—The authors read are changed from time to time, and the passages elected for study vary frequently. Those named above are used in 1901-1902, and give a fair idea of the work done.

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B	4
<i>Second Term.</i> —Plane Analytical Geometry, Division B. Plane and Solid Analytical Geometry, Division A	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4

	HOURS.
LATIN. <i>First Term.</i> —Cicero: De Oratore; the subjunctive mood; Roman History from the Gracchi to the Empire . . .	4
<i>Second Term.</i> —Christian Latin: March's Latin Hymns; derivation and formation of words; early Roman literature	4
<i>Third Term.</i> —Cicero: De Officiis; Topics in the History of Philosophy	2
GREEK. <i>First Term.</i> —Homer: The Iliad; select passages from Books XVIII. to XXIV.; Homer and the Bible compared	4
<i>Second Term.</i> —Plato: The Apology and Crito; select passages	4
<i>Third Term.</i> —Aeschines against Ctesiphon	4
Throughout the year careful attention is given to the social and political history of the period suggested by the text.	
ENGLISH LANGUAGE. <i>First Term.</i> —Trench: The Study of Words	2
<i>Second Term.</i> —Rhetoric	1
FRENCH. <i>Third Term.</i> —Grammar, Composition, and Translation of easy select passages from modern writers . . .	4
THE BIBLE.—The Greek Testament: The Book of Acts . . .	1
Throughout the year—Declamations, Themes, and Forensics.	

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
LATIN.—Tacitus: Agricola, and selections from the Annals. Roman Literature of the Silver Age	2
GREEK.—Demosthenes: On the Crown; History	4
GERMAN.—Grammar, Composition, and Translation from modern authors	4
THE BIBLE.—The Epistle to the Romans in Greek	1
BIOLOGY.—Elective with Latin (in connection with the History of the next term): Mammalian Anatomy	2

Second Term.

PHYSICS.—Acoustics, Optics	4
GREEK.—A play of Aeschylus or Sophocles	2

	HOURS.
ENGLISH.—Milton	4
ANGLO-SAXON.—Grammar and Reader (March)	4
HISTORY.—Constitutional History of the United States	2
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
THE BIBLE.—The Epistle to the Romans in Greek	1
ROMANCE LANGUAGES.—Spanish or Italian, optional	2
BIOLOGY.—Histology: Elective with Greek	2

Third Term.

LATIN.—Roman Satire: Juvenal; Archæology, Roman remains	2
ENGLISH.—Shakespeare	4
ANGLO-SAXON	4
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
LOGIC.—JEVONS	2
THE BIBLE.—The Epistle to the Romans in Greek	1
Declamations, Themes, and Debates throughout the year.	
ELECTIVES.—Each student to choose two periods from the following:—	
MATHEMATICS.—Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History of the United States	2
BIOLOGY.—General Biology	4

SENIOR YEAR.

First Term.

ASTRONOMY	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.

Two to be chosen from the following:—

INTERNATIONAL LAW.—Lawrence	2
LATIN.—Lucretius	2

	HOURS.
MATHEMATICS.—The Calculus	2
GEOLOGY	2
BIOLOGY.—Vertebrate Morphology	4
BOTANY	2

Second Term.

MENTAL PHILOSOPHY.—Continued	2
THEISM.—Flint	2
POLITICAL ECONOMY.—General Principles (Walker)	2
ENGLISH LITERATURE	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.—(Each two hours.)

Three to be chosen from the following:—

BLACKSTONE.—Commentaries on the Law of England.

HEBREW.—Grammar and reading from Genesis. 4

GREEK.

FRENCH.

GERMAN.

LATIN.

ASTRONOMY.

METEOROLOGY (Waldo).

CHEMISTRY.—Advanced instruction in Laboratory.

GEOLOGY.—Palæontology.

POLITICAL SCIENCE.—Elements of Jurisprudence.

CONSTITUTIONAL HISTORY.—United States (Bryce).

HISTORY.—Middle Ages.

HISTORY OF PHILOSOPHY.—Greek and Modern.

SANITARY SCIENCE.

MATHEMATICS.—Solid Analytical Geometry or Theory of Functions.

HUMAN ANATOMY and PHYSIOLOGY.—Elective four periods and substituted two periods for English Literature 6

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The elective classes are allowed to select the authors read, so that they vary from year to year. Advanced instruction in grammar and idiom is given in all classes.

Third Term.

HOURS.

COMPARATIVE PHILOLOGY	4
HISTORY.—Lectures on the Development of European Institutions	2
PHILOSOPHY.—Problems of Philosophy (Hibben)	2
BIBLE	1
ELECTIVES.—Same as Second Term ; except	
MATHEMATICS.—Solid Analytical Geometry or Elliptic Integrals	2
BIOLOGY.—Embryology	6
<i>Throughout the year—Themes and Extemporaneous Speaking.</i>	

PARDEE SCIENTIFIC DEPARTMENT.

This Department was organized in 1866, in accordance with the conditions of a gift from Ario Pardee, Esq., of Hazleton, Pa. The original organization has been from time to time greatly enlarged and extended, largely through the continued munificence of the founder. There are at present two General Courses of study, the Latin Scientific and the General Scientific, and four Technical Courses.

LATIN SCIENTIFIC COURSE.

This course, which leads to the Degree of Bachelor of Philosophy, was designed to meet the wishes of those who desire to pursue a course of liberal study, but will not study Greek. It therefore is the same as the Classical Course except that the time devoted to the study of Greek in that course is given to the pursuit of studies mainly of a scientific character, but throughout the general course of this school great importance is paid to the study of the English language under the special direction of Professor Francis A. March. In the Freshman year the substitutes for Greek are German and English Language and Composition, while in the Sophomore they are various English studies. The method of instruction in each Department is fully dealt with under the course of study in the General Scientific Course. The synopsis which follows will sufficiently explain any other peculiarities of the course.

SYNOPSIS.

LATIN SCIENTIFIC COURSE.

FRESHMAN YEAR.

HOURS.

MATHEMATICS. <i>First Term.</i> —Algebra	4
<i>Second Term.</i> —Algebra and Geometry, Plane and Solid	6
<i>Third Term.</i> —Algebra and Geometry completed, Division B. Geometry and Trigonometry, Division A	6
LATIN. <i>First Term.</i> —Livy: Books I. and XXI. Latin Prose. Roman History	4
<i>Second Term.</i> —Horace: Odes; Latin Prose	4
<i>Third Term.</i> —Horace: Satires and Epistles. Roman Antiquities	4
Throughout the year a review of Syntax and Etymology and Exercises in Composition.	
ENGLISH	2
GERMAN.—Grammar and selections from contemporary prose: <i>First Term</i> , 4 hours; <i>Second and Third Terms</i> , 2 hours.	
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible, throughout the year	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B	4
<i>Second Term.</i> —Plane Analytical Geometry, Division B. Plane and Solid Analytical Geometry, Division A	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
LATIN. <i>First Term.</i> —Cicero: De Oratore	4
<i>Second Term.</i> —Christian Latin. March's Latin Hymns. Roman History and Literature	4
De Senectute	2
<i>Third Term.</i> —Cicero: De Officiis; Topics in the History of Philosophy	2

HOURS.

ENGLISH LANGUAGE. <i>First Term.</i> —Trench: The Study of Words (2); and Bunyan's Pilgrim's Progress (4)	6
<i>Second Term.</i> —Rhetoric (1). Spenser: The Faerie Queene (2),	3
<i>Third Term.</i> —Chaucer: The Canterbury Tales	4
FRENCH. <i>Third Term.</i> —Grammar, composition, and transla- tion	4
THE BIBLE.—The Book of Acts. (One hour per week throughout the year)	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
LATIN.—Tacitus: Agricola and selections from the Annals. Roman Literature of the Silver Age	2
ENGLISH.—Bacon	4
GERMAN.—Grammar and Translation. (From 1903, FRENCH) .	4
THE BIBLE.—The Epistle to the Romans in German	1
BIOLOGY.—Elective, as in Classical Course: Mammalian Anat- omy	2

Second Term.

PHYSICS.—Optics, Acoustics	4
ENGLISH.—Milton	} 4
ANGLO-SAXON.—Grammar and Reader (March)	
FRENCH.—Classic Authors. (From 1903 only 2 periods) . .	4
HISTORY.—Constitutional History of the United States	2
THE BIBLE.—The Epistle to the Romans in German	1
CHEMISTRY.—Lectures, Text Book and Laboratory Work . . .	2

BIOLOGY.—Elective with French: Histology	2
ROMANCE LANGUAGES.—Spanish or Italian (optional)	2

Third Term.

LATIN.—Roman Satire: Juvenal and Persius	2
ENGLISH.—Shakespeare	} 4
ANGLO-SAXON	

	HOURS.
CHEMISTRY.—Lectures, Text Book and Laboratory Work . . .	2
LOGIC.—Jevons	2
FRENCH	2
THE BIBLE.—The Epistle to the Romans in German	1
ELECTIVES.—Four hours to be chosen from the following:—	
MATHEMATICS.—The Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History	2
BIOLOGY.—General Biology	4
<i>Throughout the year—Declamations, Themes, and Debates.</i>	

SENIOR YEAR.

First Term.

ASTRONOMY.—Practical Astronomy, with work in Observatory, . . .	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.

LATIN.—Lucretius	2
MATHEMATICS.—The Calculus	2
POLITICAL SCIENCE.—International Law	2
BOTANY	2
GEOLOGY	2
BIOLOGY.—Vertebrate Morphology	4

Second Term.

MENTAL PHILOSOPHY.—Haven, Baldwin	4
THEISM.—Flint	2
ENGLISH LITERATURE	2
POLITICAL ECONOMY: The General Principles (Walker)	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1
Six hours of the following <i>electives</i> are to be chosen:—	
BLACKSTONE.—Commentaries on the Law of England	2
HEBREW.—Grammar and Reading from Genesis	4

	HOURS.
FRENCH } The class is allowed to choose from a number of	
GERMAN } authors what authors they will read	2
ASTRONOMY	2
METEOROLOGY	2
CHEMISTRY.—Advanced instruction in Laboratory work . . .	2
GEOLOGY.—Palæontology	2
POLITICAL SCIENCE.—Elements of Jurisprudence	2
CONSTITUTIONAL HISTORY.—United States (Bryce)	2
HISTORY.—Middle Ages	2
HISTORY OF PHILOSOPHY.—Greek and Modern	2
MATHEMATICS.—Solid Analytical Geometry or Theory of Functions	2
SANITARY SCIENCE	2
BIOLOGY.—Human Anatomy and Physiology	6

Third Term.

COMPARATIVE PHILOLOGY	4
HISTORY.—The Development of European Institutions . . .	2
PHILOSOPHY.—Problems of Philosophy (Hibben)	2
BIBLE	1
ELECTIVES, as above, except Embryology for Human Anatomy and Physiology	6

Throughout the year—Themes, Forensics, and Debates.

GENERAL SCIENTIFIC COURSE.

This course leads to the degree of Bachelor of Science, and consists of a curriculum in which Mathematics, the Modern Languages and their Literatures, especially English, and the Natural and Physical Sciences receive principal attention. It includes, however, the more general studies of the Arts Course, such as History, Logic and Rhetoric, Mental and Moral Philosophy.

The Mathematics of this course is the same as the Mathematics of the Technical Courses. French and German are begun in the Freshman year and are pursued

with great breadth and particularity. The student's attention is directed to the study of the literatures of these languages in the endeavor to supply, so far as may be possible, the liberal culture ordinarily to be obtained only by the classical studies, but particular stress is laid upon the very thorough-going course in English, a description of which follows:—

ENGLISH LANGUAGE AND LITERATURE.

Professors Francis A. March and F. A. March, Jr.

In the Freshman Class there is, first of all, a thorough drill in Analysis, Parsing, and the Syntax of sentences. This is the basis of the future work, and a mastery of the general principles of Syntax, and skill in the solution of familiar idioms is brought constantly into requisition. Then before the more advanced work in Philology is undertaken, other languages are studied. French and German (as in the Classical Course Latin and Greek) come in as parts of the organized scheme of linguistic study, and are so pursued as to become a means of special culture in English.

Sophomores take up in the first term Trench on the Study of Words and Bunyan's Pilgrim's Progress; in connection with which English Grammar is studied. The Grammar subjects for this term are Syntax, Grammatical Equivalents, Rhetorical Forms, and Historical Elements. On each, daily recitations are heard, and the lessons learned are constantly illustrated by the text under review. The whole story of the Pilgrim's Progress is read, the allegorical meaning called for part by part, and salient doctrinal points noticed.

The staple of daily drill, however, is found in connection with the minute and careful treatment of selected passages. These are studied clause by clause and word by word. The Syntax is first made clear, then words are taken up; synonyms and phrases grammatically equivalent are brought into comparison, and the student is taught to feel an intelligent preference for one or another form of expression, as it may promote perspicuity, liveliness, or other traits of a clear and vigorous style. In the treatment of single words, also, the German and French are called for, and as far as practicable in the Scientific Course the Latin. The laws of change, the derivation, the root, the radical idea, kindred words, the primary meaning, changes in the meaning with the connection of thought, together with such other lines of inquiry as are suggested by Trench, as indications of history, character, moral suggestions, and the like; poetical forms of frequent occurrence are also specially noted, and the collocation of words discussed, both with respect to syntax and the rythmical cadences of speech.

In connection with this daily drill, the life and times of Bunyan are discussed in writing by each member of the class, and his diction compared with that of other standard works, and especially with the Bible. In this part of the work students are directed by questions and references, but are expected to look up information everywhere.

This system of daily drill on the best passages, reports on other readings, and weekly essays on topics growing out of the discussions of the life and times of the author, is found to lead the student on by sure and rapid steps to

an intelligent appreciation of the author's works, his place in literature, and on the whole to the best mastery of his genius.

The same general plan is pursued progressively through the course, with changes, from term to term, in the topics embraced in the drill.

The Sophomores (second term) read Spenser's *Faerie Queene*, with the same concentration upon representative passages, the special drill topics being derivation, romance of chivalry, and Spenserian stanza. In the third term Chaucer (*Canterbury Tales*) is the basis of work. Several of the tales are read and discussed, but the famous Prologue is the special subject of study and philological drill. All the results of previous works are kept constantly in review. This is an emphatic feature of the method. "A line of questions once begun is always kept up." The special drill topics this term are Phonetic Elements, Orthographic Elements, a review of Historical Elements, and Criticism of Uncertain Text.

The Juniors (first term) take for philological study selected essays of Bacon; they prepare reports and criticisms of others of his works, and of his character, life, and times, in weekly written papers. During the second term they study Anglo-Saxon. They also read Milton's *Paradise Lost*. The Classical, Latin Scientific, and General Scientific Juniors here recite together (as they do in all subsequent Anglo-Saxon and English studies of the course). The philological study is mainly directed to the deduction of English words and forms from Anglo-Saxon. The paradigms and the text read are examined word by word in this view. Special objective points are

Poetical Forms and Epic Art. In the third term Anglo-Saxon is continued, and Shakespeare's play of Julius Cæsar is read. The philological study is used mainly to clear up, enrich, and impress the thoughts of Shakespeare. The characters and the structure of the play are studied. Weekly written papers are required from each student upon selected topics connected with Shakespeare's life and times, his genius, his dramatic art, and the like.

In the Senior year the first term is given to a rapid and general survey of English literature by means of a compendium and class discussions, and conversations. In the second term a representative work of a representative author, selected by the professor, is studied with a view to more extended researches in philology and criticism, and to one elaborate essay by each member of the class, to be handed in at the close of the term. What is known as the F. A. March Prize is awarded on the basis of this term's work. During the third term, Senior year, Professor Whitney's Lectures on Language are studied. The work of the entire course in Comparative Philology is reviewed and co-ordinated, and advanced work pursued by means of lectures and class discussions.

HISTORY.

The President and Mr. Roberts.

In this course, a course in the Introduction to the Middle Ages (Emerson) and the History of the Middle Ages, with special reference to the development of European institutions, is given in the third term of Sophomore year.

All the courses in History and Political Science described under the Classical Course are also open to students of this Department.

SYNOPSIS.

GENERAL SCIENTIFIC COURSE.

FRESHMAN YEAR.

	HOURS.
MATHEMATICS.—Algebra, Trigonometry, Mensuration, and Analytical Geometry	4-5-5
ENGLISH.—March's Method. Grammar	2
FRENCH.—Grammar, composition and translation. (Third term)	2
GERMAN.—Grammar, composition and translation	2
CHEMISTRY.—Text-book, Lecture, and Laboratory work in Elementary and Organic Chemistry. (Four hours first term, two hours second and third terms)	4-2-2
DRAWING.—Industrial Drawing. (<i>Each Term.</i>)	2
THE BIBLE.—Old Testament in English and Coleman's Geography of the Bible. (One hour throughout the year.)	1
HYGIENE.—Lectures.	
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Analytical Geometry and Differential Calculus	4
<i>Second Term.</i> —Differential and Integral Calculus	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
ENGLISH. <i>First Term.</i> —Trench on the Study of Words.	
Bunyan: The Pilgrim's Progress	6
<i>Second Term.</i> —Rhetoric. Spenser: The Faerie Queene	3
<i>Third Term.</i> —Chaucer: Canterbury Tales	4
FRENCH AND GERMAN.—Language and literature	4
HISTORY.—Middle Ages	2
THE BIBLE.—The Acts of the Apostles in French	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

HOURS.

PHYSICS.—Heat, Electricity, Magnetism, Optics, Acoustics. <i>First and Second Terms</i>	4
ENGLISH.—Bacon, Milton, and Shakespeare. (Four hours per week throughout the year)	4
ANGLO-SAXON.—March's Grammar and Reader. (Four hours per week second and third terms)	4
FRENCH AND GERMAN. (Two hours per week each throughout the year)	2
LOGIC.—JEVONS	2
BIOLOGY. <i>First Term</i> .—Mammalian Anatomy	4
HISTORY.—Constitution of the United States. (Second term) .	2
THE BIBLE.—New Testament Epistles in German	1

ELECTIVES.

MATHEMATICS.—Calculus	4
HISTORY. <i>Third Term</i>	2
GEOLOGY. <i>Third Term</i>	4
BIOLOGY:—	
<i>Second Term</i> .—Histology (with French)	2
<i>Third Term</i> .—General Biology	4

SENIOR YEAR.

ASTRONOMY.—Practical and Theoretical. (First term)	2
MENTAL PHILOSOPHY. <i>First and Second Terms</i>	4
MORAL PHILOSOPHY AND THEISM	2
COMPARATIVE PHILOLOGY. <i>Third Term</i>	4
POLITICAL ECONOMY. <i>Second Term</i> (Walker)	2
MODERN LANGUAGES AND LITERATURES. (Throughout the year.)	4
BIBLE	1
ELECTIVES, as in the Latin Scientific Course.	

Throughout the year—Themes and Extemporaneous Speaking.

DEPARTMENT OF ENGINEERING.

There are at present embraced in the curriculum three courses in ENGINEERING : Those of Civil, Mining, and Electrical Engineering. The location of the College is peculiarly favorable for such engineering schools. The city of Easton is a centre of railroads and canals, while bridges, foundries, pipe works for water and gas, cement works, rolling mills, repair shops, and many other industrial works are near at hand. Mines of iron, anthracite coal, and zinc are easily accessible, and extensive quarries of limestone, steatite, and slate are to be found in the immediate vicinity, and afford excellent opportunities for the study of mining operations. The demand, created by the great number of mechanical works in connection with these natural conditions and their development, for special trained chemists has led to the establishment of a special course in CHEMISTRY.

COURSES OF INSTRUCTION.

The instruction in all the engineering courses is substantially the same during the first two years of the course, except that the electrical engineers substitute the study of physics and practical work in the physical laboratory for a part of the surveying, field, and office work of the other courses.

The following branches are common to all the courses :—

MATHEMATICS.

Professor Hall and Messrs. Brasefield, Fetters, Reichard, and Simpson.

The attention of applicants for admission to technical courses is called particularly to the necessity of thorough

preparation in Mathematics. All candidates should be thoroughly grounded in fundamental principles and operations, and it is strongly recommended that the Preparatory Mathematics be carefully reviewed just prior to entrance. Readiness and accuracy is required not only in demonstrating propositions, but also in solving problems.

Those who are prepared in the additional Algebra requirement and in Plane Trigonometry, may, after a satisfactory examination, join an advanced division of the class. The Advanced Algebra will be required in 1903 and Plane Trigonometry in 1905.

While the study of Mathematics as mental discipline will not be overlooked, the object will always be to give the student that working knowledge of the subject that will enable him to apply, accurately and readily, mathematical principles to the solution of engineering problems.

Higher Algebra, Plane and Spherical Trigonometry, Logarithms, Mensuration, and Plane Analytical Geometry are given in the Freshman year. The following subjects are given in the Sophomore year: Analytical Geometry of three dimensions, Differential and Integral Calculus, Differential Equations, and Least Squares.

ASTRONOMY.

In addition to a course in General Astronomy similar to that of the Classical Course, the Civil Engineers are given a course in Practical Astronomy. This course keeps constantly in mind the needs of the Engineer. It includes a careful study of the Transformation of Astronomical Co-ordinates, a short discussion of Parallax and

Refraction, a careful discussion of the construction, adjustment, and use of Astronomical Instruments, of the methods of determining Time and Latitude by means of the Sextant, of Time by the Transit Instrument, of the methods of determining Longitude, and of the methods of determining Latitude by the Zenith Telescope. The students are required to make frequent observations with the Sextant and Transit Instrument.

SURVEYING.

Professor Folwell.

For Drawing, Laboratory, and Field work an "hour" consists of three hours; for other studies, of one hour.

This course, progressive and practical, is as follows:—

FRESHMAN YEAR.

	HOURS.
<i>Third Term.</i> Lectures and Recitations	1
Summer School of Surveying. (In vacation) .	Three weeks.

SOPHOMORE YEAR.

	HOURS.
<i>First Term.</i> Lectures, Recitations, Field and Office Work. Theory of Chain, Compass, and Transit Surveying; Leveling; Adjustment and Use of Surveying Instruments	2
<i>Second Term.</i> Lectures, Recitations, and Office Work. Pen and Colored Topography; Location and Construction of Roads, Streets, and Pavements .	2
<i>Third Term.</i> Lectures, Recitations, Field and Office Work. Topographical Surveying; Map of Survey; Notes; Railroad Surveying	2
Summer School of Surveying. (In vacation) .	Three weeks.

JUNIOR YEAR.

	HOURS.
<i>First Term.</i> Lectures, Recitations, Field and Office Work.	
Railroad Reconnoissance and Location . . .	3

SENIOR YEAR.

<i>Third Term.</i> Geodesy ; Lectures, Recitations, Field and Office Work	2
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DRAWING.

Professor Hall and Messrs. Brasefield and Fetters.

Instruction in the Elements of Mechanical Drawing includes the use and testing of drawing instruments and materials, the drawing of lines, pen tinting and shading, flat tinting with brush, and wet and dry shading in ink and in colors, free-hand pen shading; plans of buildings, instrumental copying, traced copying, and transfer of drawings, blue prints, and working drawings.

In addition to text-book exercises, free-hand sketches and mechanical drawings in ordinary orthographic, isometric, and clinographic projections are made from models constructed for this purpose.

The drawing for the first two years is arranged as follows :—

FRESHMAN YEAR.

<i>First Term.</i>	Elements of Mechanical Drawing. Plane Problems. Free-hand Lettering.
<i>Second Term.</i>	Elementary Projections. Working Drawings.
<i>Third Term.</i>	Projections, including Shades and Shadows. Isometric and Cabinet Projections. Model Drawing. Sketching.

SOPHOMORE YEAR.

<i>First Term.</i>	Descriptive Geometry. Plates. Plotting Surveys.
<i>Second Term.</i>	Descriptive Geometry. Plates. Pen and Colored Topography.
<i>Third Term.</i>	Machine Drawing. Map of Survey.

All the students in the Engineering, Chemical, and General Scientific Departments take the first year's work in Drawing, as shown above. All the students in the Engineering Departments take the second year's course. During the Junior and Senior years the drawing in the Technical Departments includes the following: Maps of Surveys, Graphic Statics, Constructions in Stone Cutting, Bridge Drawing, and graphical methods of locating faulted beds and veins.

MINERALOGY AND GEOLOGY.

Professor Peck.

Students in the Technical Courses begin work in this Department the first term Junior year, and complete it the second term Senior year, with the exception of the students in the Mining Engineering course, who continue through the third term of the Senior year, taking the regular field work required of the Senior classicals, and in addition a short course in the geology of ore deposits, consisting of one lecture per week.

The first term Junior year is devoted to Crystallography, in which Elements of Crystallography, by G. H. Williams, is used as a text book. The course is supplemented abundantly by laboratory practice.

The second term's work consists in a systematic review of mineral species, more especial attention being paid to their chemical and crystallographic relations and to their mode of occurrence in Nature. Instruction is given by lectures, which are illustrated by a study collection, consisting of some two thousand specimens, including the most important species.

The third term's work consists in a discussion of mineral aggregates, or how minerals combine to form igneous, metamorphic, and sedimentary rocks, which discussion is in direct preparation for the work in Geology which follows in the Senior year.

The Department has a large projecting apparatus to be used in demonstrating before a class the optical properties of the rock-forming minerals by means of polarized light, to which there is also a large microscope attachment for use in projecting upon a screen thin sections of rocks for the purpose of showing their structure and mineralogical composition. Also five reflecting goniometers, with horizontal circle and of the most recent pattern, have been purchased, to be used by the more advanced students in the technical courses in determining the geometrical constants of crystals; and a new and improved polariscope to be used in the study of crystal optics. (All of the above instruments were made by Fuess, in Berlin.) Four petrographical microscopes are also in the possession of the Department, and instruction will be given to the more advanced students in modern petrographical methods, *i. e.*, in the preparing and mounting of thin sections for study with the microscope.

The course in Mineralogy of the Junior year is fol-

lowed in the Senior year by a course in the elements of Geology, in which Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed. The first term is devoted to Dynamical, Structural, and Physiographical, and the second term to Historical, Geology.

Students pursuing the course in Mining Engineering will, in the third term Senior year, take field work with the classical elective division, and will be given also a short course, consisting of one lecture per week, in the geology of ore deposits.

The text-book in the Technical Courses is Williams' *Crystallography*. Crystallography is taught with the aid of two hundred and fifty models in wood. Instruments are provided for the study of the optical properties of minerals. There is also a mineral dresser, a lathe run by electricity, and all the apparatus for the preparation, mounting, and microscopical study of thin mineral and rock sections.

CHEMISTRY.

Professor Hart and Messrs. Bryden and Turrentine.

The study in this Department begins with a course of lectures on General Chemistry combined with study of a text-book. In connection with these lectures each student is required to work in the Laboratory under proper direction.

In the Mining Engineering and Electrical Engineering Courses this course is followed in the Junior and Senior years by courses in qualitative and quantitative analysis. Special attention is given to the analysis of engineering materials, and the modern quick methods are thoroughly taught, theoretically and practically.

Partial or special students may enter the Laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

PHYSICS.

Professor Moore.

The studies in this Department in all the courses at present occupy four recitations or lectures a week, beginning with the third term, Sophomore year, and continuing through the first and second terms of the Junior year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments.

In other subjects text-book study is accompanied with illustrative lectures, aided by apparatus which is continually enlarged and improved.

To the students of the Technical Courses an optional course in Laboratory Physics is offered. Experiments in mechanics, sound, heat, electricity, magnetism, and light are performed by the student, thus illustrating and emphasizing the principles of each respective subject.

For the advanced studies of the Technical Courses in Analytical Mechanics and other topics of Mechanical Engineering see pages 71 and 78.

In Physics, as well as in Astronomy, Chemistry, Engineering, and Natural History, the studies are illustrated by wall charts, twelve hundred in all, many of which give illustrations not otherwise easily accessible to students.

HISTORY AND POLITICAL ECONOMY.

The Juniors pursue a course in the History of the Constitution of the United States for one term, and the Seniors a course in Political Economy for one term. (*Vide* pages 23 and 25.)

RHETORIC AND ELOCUTION.

Prof. F. A. March, Jr.

Besides the study of text-books, weekly written essays are required, and declamations in class or before the College. *Extemporaneous Speaking* is also cultivated. In those studies, such as Mental Philosophy, in which the recitation can be had by topics, students are required to take the floor daily and present an outline of the author's thought, with such additions as they choose in the form of a lecture to the class. Extemporaneous (unwritten) debates are also had in class. The Juniors, during the third term, and the Seniors deliver unwritten addresses on subjects of their own choice, instead of selected declamations. The other classes speak selected pieces. Great pains are taken to encourage the habit of simple and earnest communication of connected thought. For the training in these branches to be had in the College Literary Societies, see page 111.

A Thesis is required in all the Technical Departments as a condition of graduation. It must show evidence of original investigation upon a subject appropriate to the Department and approved by the Professor in charge. It must be neatly written upon regulation paper, bound and illustrated with such photographs, drawings, and sketches as may be needed. It will be prepared during

the latter part of the Senior year, and an opportunity will be given at the close of the course to read and defend the same before a public audience. These Theses, accompanied by their drawings, photographs, &c., if accepted, become the property of the College, and are deposited in the Libraries of the various Departments.

DEPARTMENT OF CIVIL ENGINEERING.

Professors J. M. Porter and Folwell, and Messrs. Brasefield and Fetters.

The design of this course is to furnish such theoretical instruction and engineering practice as will prepare its graduates for immediate usefulness in the field and office, and, after a moderate amount of professional experience, enable them to fill positions of trust and importance in their chosen profession.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the field, laboratory, and drafting-room. Theoretical principles are illustrated and explained by such problems and examples, taken as far as possible from actual engineering practice, as will best serve the purpose. In addition to the regular lectures, occasional ones are given by prominent engineers, in active practice, upon their specialties.

During the course visits are made to engineering structures, mills, &c., in connection with their special study. During the Senior year a tour of inspection is made of the prominent industries not otherwise accessible.

FACILITIES FOR INSTRUCTION.

The Department has a large equipment of instruments necessary for the various branches of engineering field

practice, including chains, tapes, compasses, plane-tables, transits, levels, barometers, base-rods, standard base-line tapes and pulling apparatus, sextants, solar compasses, solar attachments for transits, floats, and current meters. A twelve-inch portable altitude and azimuth instrument of the latest and best form, from Fauth & Co., Washington, D. C., is used for instruction in Geodesy and Practical Astronomy. It is read by micrometer microscopes to single seconds, both of altitude and of azimuth, and is provided with level for double zenith distances. A precision level of the latest design is employed in instruction in precise leveling. The astronomical observatory contains an equatorial telescope, transit, an astronomical clock, meteorological instruments, &c.

For use in the lecture-room there are numerous models of the various types of bridges and roofs, several complete sets of full-weight sections of I and deck beams, channels, Z bars, angles, Phoenix and Keystone Columns, and the standard built sections; five foot section of a full weight plate girder, numerous full-weight sections of riveted joints, representing bridge and boiler work, hand and power riveting; sections of steel rails for railroads and street railways, cable slots, &c.; drawings, photographs of engineering structures when completed and during construction; slide rules and other calculating machines.

The Department also has a full-weight pin-connected highway bridge of fifty feet span and fourteen feet roadway, weighing twelve tons, together with all false work and tools necessary to erect the same.

The main Testing Laboratory is thirty feet by sixty

feet in dimensions, well lighted, and contains an Olsen and a Riehle Automatic Machine of one hundred thousand pounds capacity, arranged for tension, compressive, and transverse testing; a sixty-thousand pound Hydraulic Machine, a four-thousand pound wire tester, and a smaller machine for testing cord, twine, &c.; a transverse machine for specimens up to five feet in length, and provided with micrometers for measuring deflection; a torsion machine; a rattler for abrasion test of paving brick; improved elongation meters, and numerous smaller micrometers. The power for the laboratory is furnished by a ten-horse power electric motor.

The Cement Laboratory contains two two-thousand and one one-thousand pound machine for testing cement by tensile, compressive, or transverse stress; a machine for moulding briquettes under pressure, and a power-driven Boehme Hammer; a jig; a boiler for boiling tests; large immersion tanks, with running water, and the necessary moulds, sieves, scales, moist closets, &c. The power for this laboratory is furnished by a three-horse power electric motor.

The Hydraulic Laboratory contains a large vertical tank arranged for making experiments on the flow of water through orifices and nozzles under heads up to three hundred feet, as well as several tanks for use under low heads; three tanks, two of them thirty feet long, for weir experiments; a turbine, Backus wheel, and other water motors; a Venturi meter, a measuring tank of a capacity of four thousand gallons, a smaller one of three hundred gallons, scales, and other appliances for measuring the water used in experiments, as well as arrange-

ments for testing meters, nozzles, and fire hydrants, and for lecture-room illustrations. There is also connected with the laboratory a one-million gallon Worthington duplex pump. The laboratory is connected with a large cistern by four lines of sewer pipe of different sizes, each three hundred feet long, and arranged for making tests of joints and various experiments on flow of water.

The shop, which is in charge of a skilled mechanic, contains an engine lathe, drill press, a planer, a mineral lathe and saw, and the other necessary appliances for preparing test specimens, models, and apparatus, and for repair work.

The Library contains a number of the best and latest books and periodicals upon Engineering subjects, and students are encouraged to make free use of the same.

SPECIAL STUDIES.

The first two years of the course are spent in laying a foundation of pure mathematics, drafting, surveying, chemistry, and modern languages. The last two years are devoted to the more purely professional work, which may be divided as follows:—

SURVEYING.—The theoretical study of surveying extends over four terms, the field practice being confined almost entirely to the Summer School in Surveying. This school became a required part of the course with the year of 1901-02. The course in surveying includes land surveying, leveling, topography, hydrography, triangulation, railroad reconnoissance and location, and the elements of geodesy. Particular attention is given to have the students become rapid and at the same time accurate instrument men, to be able to handle a corps advantageously, to keep neat and systematic notes, and make a clear and correct map. No error is allowed in the field or map which is not within the limits observed in current practice.

ANALYTICAL MECHANICS is taught by means of lectures and recitations, treating upon forces, their composition and resolution,

conditions of equilibrium, centre of gravity, moment of inertia, theory of motion, momentum, impact, energy, and friction; solution of numerous problems.

RESISTANCE OF MATERIALS.—This subject is treated by means of lectures, text-books, and laboratory practice sufficient to thoroughly fix in the mind the principles of stress and strain, the behavior of materials under tension, compression and shearing stresses, resistance of pipes and riveted joints, strength and flexure of simple, cantilever, restrained, and continuous beams variously loaded; formulas for columns, torsion, shafts; working-strengths and fatigue of materials; designing of rolled and built beams, shafts, and columns according to standard specifications. Visits are made in connection with this course to pipe and boiler works.

MATERIALS OF CONSTRUCTION.—This course is to familiarize the student with the qualities, requirements, method of testing, preserving, and cost of material used in engineering structures. In connection with this course, visits are made to blast furnaces, rolling and wire mills, quarries, and cement works.

BRIDGES AND ROOFS.—This course includes the computation of stresses in the various forms of trusses by both analytical and graphical methods. Following this, each student designs a plate-girder, and then a pin-connected bridge, according to standard specifications, making full computations, working-drawings, bill of material, and estimate of cost for same; special attention being given to an economical design, and to joints and other details. Actual practice is given by the erection each year by the students of a full-weight, pin-connected bridge belonging to the Department. Visits are made to bridges, and their details and general design are criticised, upon which written reports are made.

HYDRAULICS.—This subject is treated by recitations and laboratory work, embracing the study of head, velocity, and discharge through orifices, tubes, pipes, canals, and rivers; measurement of water-power; testing hydraulic motors.

MUNICIPAL ENGINEERING, which is preceded by a course in Bacteriology, is taught by lectures and recitations, supplemented by practice in designing. It covers the supplying of water, and construction of reservoirs, stand-pipes, and pumping plants; the purification of water, and its distribution through mains and appurtenances; methods of collecting sewage, both dry and water-carried,

and of disposing of this and of garbage, including determining the size and capacity of sewers, mains, laterals, inlets, flush tanks, &c.; cleaning and lighting streets; drainage and ventilation of buildings; estimates and specifications. In connection with this study, frequent visits are made for the purpose of inspecting existing works, completed and under course of construction. Each student is required to design a system of distribution or sewerage for some imaginary town, making complete maps, bill of material, and detailed estimate of cost.

RAILROAD ENGINEERING.—The work in railroad engineering includes the mathematical discussion of curves, frogs, switches, and crossings; economical locations as to grades and curves; calculation of earthwork; designing of trestles, culverts and other structures; discussion of the properties and shapes of materials used in construction. The field practice consists of a reconnoissance and location of a line upon such ground as will best illustrate the problems occurring in actual practice, making a complete map, and designing such details as drains, culverts, road-crossings, &c., calculating earthwork; complete set of notes of all work done in field and office; estimating cost, including equipment.

MASONRY CONSTRUCTION.—This course treats of the requisites of stone, brick, and cement; practice in the testing of these materials; the method of preparing mortar and concrete; strength of stone and brick masonry, foundations, dams, retaining walls, bridge piers and abutments; culverts and arches; study of existing structures; specifications and cost.

ROADS, STREETS, AND PAVEMENTS.—This course comprises the reconnoissance, location, construction, and maintenance of towns and country roads, city streets, and pavements; tramways and street railways; details of construction; street cleaning; testing the quality of road material; specifications; estimates.

ASTRONOMY is taught by means of text-books and lectures accompanied by practice in the field and observatory. The practical work includes the use and adjustment of instruments, and the determination of time, latitude, longitude, and azimuth.

GEODESY.—This course includes the study of the instruments and the methods employed in measuring base lines, establishing stations, measuring angles, reducing triangulations, projecting maps, &c.

MACHINERY.—This course includes the theoretical principles of the steam-engine and other prime movers. Examinations and

reports are made upon the power plants of some of the manufacturing establishments of the city, and upon locomotives, elevators, and cranes. The student is made familiar with the use of the steam indicator, planimeter, and speed indicator, and has practice in interpreting indicator diagrams.

The Department invites its friends and students to send specimens of materials, drawings, models, or photographs of bridges, machinery, or other engineering works. Illustrated circulars and price lists are also desired. Such contributions will be labeled with the donor's name and placed on exhibition, and when possible used in the work of the Department.

SYNOPSIS.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR.

First Term.

	HOURS.*
MATHEMATICS.—Algebra (Wentworth)	4
CHEMISTRY.—Lectures and Recitations (Hart)	4
MODERN LANGUAGES.—German Grammar, Composition, and Translation, 2; English, 2	4
DRAWING.—Elements of Industrial Drawing; Plane Problems, 2	2
HYGIENE.—Lectures on Health	1
THE BIBLE	1

Second Term.

MATHEMATICS.—Trigonometry (Crockett's)	5
CHEMISTRY.—Lectures and Laboratory Practice	2
MODERN LANGUAGES.—French, 2; German, 2; English, 2	6
DRAWING.—Projections; Plates; Free-hand Lettering	2
THE BIBLE	1

Third Term.

MATHEMATICS.—Spherical Trigonometry and Analytical Geometry (Wentworth); Mensuration (Hall)	5
MODERN LANGUAGES.—French (continued), 2; German (continued), 2; English, 2	6
DRAWING.—Projections (Model Drawing); Plates	2
SURVEYING.—Instruments and their use	1
CHEMISTRY	2
THE BIBLE	1

Throughout the year—Themes.

SUMMER SCHOOL OF SURVEYING. (In vacation.) . . . Three weeks.

* An "hour" indicates one hour of recitation or an equivalent period of three hours of field or laboratory work.

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytical Geometry (Bowser), Differential Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	2
MODERN LANGUAGES.—French, 2; German, 2; English: Trench on Words, 2	6
SURVEYING.—Lectures, Recitations, Field and Office Work. City and Mine Surveying; Leveling; Map of Survey; Notes; Location and Construction of Roads, Streets, and Pavements	2
CHEMISTRY	2
THE BIBLE	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	3
MODERN LANGUAGES.—German, 2; French, 2; Rhetoric, 1	5
DRAWING—SURVEYING.—Pen and Colored Topography	2
ANALYTICAL CHEMISTRY	2
THE BIBLE	1

Third Term.

MATHEMATICS.—Least Squares and Differential Equations	5
MECHANICS.—Elementary Mechanics (Moore)	4
DESCRIPTIVE GEOMETRY	2
CHEMISTRY.—Lectures and laboratory	2
SURVEYING.—Lectures, Recitations, Field and Office Work. Topographical Surveying; Survey of a small area; Map of Survey; Railroad Surveying	2
THE BIBLE	1

SUMMER SCHOOL OF SURVEYING (in vacation) . . . Three weeks.

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
APPLIED MECHANICS	4
CHEMISTRY.—Metallurgy of Iron and Steel	2

	HOURS.
MINERALOGY.—Crystallography	2
RAILROADS.—Lectures, Recitations, Field and Office Work.	
Railroad Reconnoissance, Location and Construction . . .	3
THE BIBLE	1

Second Term.

MECHANICS.—Theory and Conditions of Equilibrium. Centre of Gravity. Moment of Inertia. Solution of Problems . . .	4
PHYSICS.—Acoustics; Optics	4
MINERALOGY.—Descriptive	2
RESISTANCE OF MATERIALS	3
ELECTRIC RAILWAYS	2
RAILROADS.—Locating, Designing and Estimating Quantities. .	2
THE BIBLE	1

Third Term.

MACHINERY.—Steam Engine, Elevators, Cranes. Lectures and Text-book	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory	4
SURVEYING.—Lectures and Recitations. Railroad Economics; Field Work; Topographical Surveying	2
MINERALOGY	3
BACTERIOLOGY	2
THE BIBLE	1
THEMES.	

SUMMER SCHOOL OF SURVEYING (in vacation) . . . Three weeks.

SENIOR YEAR.

First Term.

BRIDGES AND ROOFS.—Theory and Calculation of Stresses in Simple Trusses by Analytical and Graphical Methods. Designing of a Roof-truss	6
HYDRAULICS.—Theory of Hydrostatics. Efflux of Water from Orifices and Tubes. Weirs. Flow in Pipes, Canals, and Rivers. Hydraulic Motors. Laboratory Work	5
GEOLOGY	2

	HOURS.
ASTRONOMY.—Descriptive Astronomy. Text-book and Lectures	2
BIBLE	1

Second Term.

BRIDGES.—Theory and Calculation of Stresses in Continuous, Cantilever, and Suspension Bridges by Analytical and Graphical Methods. Designing of Plate-girders and Riveted Bridges, with Working Drawings. Estimates and Contracts	6
MUNICIPAL ENGINEERING. WATER SUPPLY.—Source and Supply of Water for Towns. Designing, Construction, and Maintenance of Systems	3
MASONRY CONSTRUCTION.—Testing Laboratory	2
GEOLOGY.—Historic and Dynamic. Text-book and Lectures .	2
ASTRONOMY.—Practical Astronomy. Observatory Work . . .	2
POLITICAL ECONOMY	2
BIBLE	1

Third Term.

BRIDGES.—Design of a Pin-connected Bridge, with Working Drawings. Bill of Material. Estimates and Contracts .	6
MUNICIPAL ENGINEERING; SANITARY.—Designing, Construction, and Maintenance of Sewerage Systems. Sewage Disposal. Drainage, Ventilation, and Heating of Buildings. Street Cleaning and Garbage Disposal	5
SURVEYING.—Field and Office Work. Precise Triangulation and Leveling. Elements of Geodesy	2
DRAWING.—Bridge Drawing. Maps. Law of contracts . . .	2
ERECTION.—Designing of False Work, and Erecting of Bridges. Practice in Erecting a Full-weight Pin-connected Bridge.	
THESIS for Graduation.	
BIBLE	1

MINING ENGINEERING DEPARTMENT.

Professor Hall and Messrs. Brasefield and Fetters.

The aim of the course in Mining Engineering, leading to the Degree of Engineer of Mines, is to provide a good education; to lay in a thorough manner a sound foundation in Engineering, and to give special preparation in Mining, Geology, Chemistry, Metallurgy, and Assaying.

The courses in Surveying, Analytical Mechanics, Resistance of Materials, Materials of Construction, and Railroad Engineering are given in the Civil Engineering Department, and have been fully described.

The courses in Mathematics, Languages, Physics, and Pure Graphics are the same in all the Engineering Departments, and have been presented.

A course in the Theory of Steam Engineering is followed by Graphical Constructions and Computations.

In Mechanical Engineering, after the courses in Analytical Mechanics, Resistance of Materials, Materials of Construction, and Graphic Statics, a term of Machine Design and Construction is given.

In Surveying, the theory and practice extends through the first three years, and includes: Chain, Compass, and Transit Surveying; Adjustment of Instruments; Leveling; City Surveying; Location and Construction of Roads, Streets, and Pavements; Topographical Surveys; Railroad Reconnoissance, Location, and Construction, with Profile Plans, Earthwork Calculations, Bills of Material, Estimates, Specifications, and Contracts; Theory of Mine Surveying, and the actual survey of a mine.

Following the course in Electricity as given in Physics, two periods each week for one term are devoted to the

study of Electrical Machinery with selected laboratory work, having especial reference to the application of electricity to mining operations.

The course in Drawing includes: Elements of Mechanical Drawing, tracings and blue prints; Free-Hand Drawing and Lettering; Descriptive Geometry; Topographical Drawing; Graphic Statics; Map Drawing; Machine Drawing and Design. Additional drawing is also required in connection with mining problems.

The work in Chemistry begins with the first term of the Freshman year, and continues, without any break, for two and one-half years. Lectures and text-book study are accompanied by recitations and laboratory practice.

Metallurgy is given in two terms, and embraces the metallurgy of iron, steel, gold, silver, copper, lead, zinc, &c. Thorough courses are also given in Assaying and Blowpiping.

Particular stress is laid on a thorough course in English, which extends over the first two years. The course includes the study of Rhetoric. Both German and French are studied each term for the first two years. Two periods each week for one term are devoted to the study of Political Economy, and the same length of time is given to the study of the Constitution of the United States. A theme written on some assigned technical subject is required of the student each term.

In addition to the courses in Mineralogy and Geology, as previously explained, the mining engineers are given a course of two hours each week for one term in the study of Ore Deposits, and a course of the same length is given in Economic Geology. Instruction in the classroom will be supplemented, so far as possible, by a study

of the different kinds of ore, and of the "country rock" in which they occur. A special course in the modern methods of determining rocks in thin sections by means of the polarizing microscope, with instruction in the proper methods of preparing and mounting the sections, will be offered; and practice in the ordinary methods of field work in geology, with the mapping and sectioning of a certain region, will be given.

The course in Mining proper begins with the Theory of Mine Surveying and the solution of problems for determining the position of faulted ore bodies. Then follows Prospecting for ore deposits in lodes, beds, and placers; Prospecting for magnetite with the magnetic needle, and borings for water, oil, and gas. The study of Rope, Rod, and Diamond Drill Boring is followed by that of Blasting and Excavation. In this connection the various tools, machines, and explosives are studied, together with their application in Blasting and Quarrying. Shaft Sinking, Shaft Boring, and Tunneling are studied, together with the materials for the support of excavated spaces and the methods of their application. While all the methods of Exploitation are investigated, particular attention is given to the mining of soft ore bodies, and of anthracite and bituminous coal. In the treatment of Haulage and Winding, special consideration is also given to the requirements of coal mining. Prominence is given to the study of Ventilation and Lighting because of their great importance in coal mining. The subject of Drainage receives careful treatment. Mining Law is studied with reference to locations on public lands, and also with reference to the prevention of mine accidents. The

Mechanical Separation of Ores is studied, and designs and reviews of Special Mining Operations are made. The principles involved in determining the values of Mines and Quarries are discussed.

The Mining Engineering students use a separate room as a study. This is provided with an excellent Mining Library, and is supplied with the leading Mining periodicals. By the aid of a topical index, the library is regularly used in the study of the subjects assigned. The student is in this way led to many original sources for information, and becomes acquainted with the prominent works on Mining.

Magnetite, hematite, and limonite iron mines are close at hand, and the anthracite coal mines and zinc mines are easily accessible; these, with extensive quarries of slate, limestone, steatite, granite, serpentine, and sandstone in the vicinity, offer excellent opportunities for the study of mining and quarrying operations.

The Ingersoll-Sergeant Drill Company, one of the largest manufacturers of mine machinery in the world, is located at Easton. This gives the Mining students the opportunity of seeing the construction of important mine machinery and of testing the machines.

Frequent visits are made to the mines and quarries in the vicinity, and two weeks in the spring vacation are spent at some prominent mining region in the practice of Mine Surveying and in the study of Practical Mining. Students are advised to spend one long summer vacation during their course in actual work at the mines.

The spring trip of 1902 was taken to the bituminous regions of Western Pennsylvania. A survey was made

in a mine at Brownsville and several other mines were inspected. Important engineering plants in the Pittsburg region were visited, among which were the Homestead Steel Works, National Tube Works at McKeesport, Pennsylvania Car Shops at Altoona, American Bridge Company's Works and Westinghouse Electric Manufacturing Company's plant.

Attendance at one session of the Summer School of Surveying is required of the Mining Engineering students, and attendance at the second session is strongly recommended.

SYNOPSIS.

MINING ENGINEERING COURSE.

The Freshman year the same as in Civil Engineering. (See page 74.)

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytical Geometry and Differential Calculus (Hall)	5
DRAWING.—Descriptive Geometry (Hall)	2
FRENCH AND GERMAN	4
ENGLISH.—Trench: The Study of Words	2
SURVEYING.—Lectures, Recitations, and Laboratory. Theory of Chain, Compass, and Transit Surveying; Construction, Adjustment, and Use of Instruments	2
CHEMISTRY.—Lectures and Laboratory	2
THE BIBLE.—The Acts of the Apostles, in French	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
DRAWING.—Descriptive Geometry (Hall)	3
MODERN LANGUAGES.—German, 2; French, 2	4
SURVEYING.—Drawing. Pen and Colored Topography	2
CHEMISTRY.—Lectures and Laboratory Practice	2
ENGLISH.—Rhetoric	1
THE BIBLE.—The Acts of the Apostles, in French	1

Third Term.

	HOURS.
MATHEMATICS.—Integral Calculus (Hall), Differential Equations, and Least Squares	5
MECHANICS.—Elementary Mechanics	4
DRAWING.—Sketches and Working Drawings of Machines, with tracings and blue prints	2
SURVEYING.—Field and Office Work. Land and Mine Surveying. Computing Areas. Map of Survey	2
CHEMISTRY.—Lectures and Laboratory	1
BLOWPIPING	1
THE BIBLE.—The Acts of the Apostles, in French	1
<i>Throughout the year.—Themes.</i>	
SUMMER SCHOOL OF SURVEYING (in vacation)	Three weeks.

JUNIOR YEAR.

First Term.

	HOURS.
MECHANICS.—Theory and Conditions of Equilibrium, Centre of Gravity, Moment of Inertia, Solution of Problems	4
PHYSICS.—Heat, Magnetism, and Electricity	4
SURVEYING.—Lectures, Recitations, Field and Office Work. Topographical Survey and Leveling. Map of Survey	3
MINERALOGY.—Crystallography	2
CHEMISTRY.—Quantitative Analysis	2
THE BIBLE.—New Testament Epistles, in German	1

Second Term.

APPLIED MECHANICS	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory	3
PHYSICS.—Acoustics. Optics	4
RAILROAD ENGINEERING	2
SPANISH (Optional)	2
CONSTITUTION OF THE UNITED STATES	2
MINING	2
MINERALOGY.—Descriptive Mineralogy	2
THE BIBLE	1
MINING.—Practical Work in the Mines in the Spring Vacation.	

Third Term.

	HOURS.
RESISTANCE OF MATERIALS.—Testing Laboratory	4
STEAM ENGINEERING	4
MINERALOGY.—Determinative	3
MINE ENGINEERING	2
RAILROAD ENGINEERING	2
THE BIBLE	1
MINING.—Map of Mine Survey.	
<i>Throughout the year.—Themes.</i>	

SENIOR YEAR.

First Term.

HYDRAULICS.—Theory of Hydrostatics. Flow of Water in Pipes, Canals, and Rivers. Weirs. Efflux of Water from Orifices and Tubes. Hydraulics. Motors	5
MECHANICAL ENGINEERING	2
METALLURGY	2
GEOLOGY	2
MINING.—Prospecting, Deep Boring, Blasting and Quarrying,	4
BIBLICAL STUDY	1

Second Term.

METALLURGY	2
GEOLOGY	2
ASSAYING	4
POLITICAL ECONOMY	2
MINING.—Shaft Sinking, Tunneling, Exploitation, Haulage, and Winding	5
BIBLICAL STUDY	1

Third Term.

FIELD GEOLOGY	2
ECONOMIC GEOLOGY.—Lectures, Recitations, and Field Work .	2
ELECTRICAL ENGINEERING.—Electric Lighting and Electric Mine Machinery	2
MINING.—Ventilation, Drainage, Mechanical Separation of Ores. Designs for and Reviews of Special Mining Op- erations	9
BIBLICAL STUDY	1
GRADUATION THESIS.	

COURSE IN ELECTRICAL ENGINEERING.

Professor Moore and Mr. Simpson.

This course was organized in response to an earnest demand from students who sought opportunities of study in this department of science. It is parallel to the other technical courses, and differs from them in substituting the study of Physics, especially Magnetism and Electricity, for the strictly professional portions of the other courses.

The Sophomore year is the same as that of the civil engineers, except that two periods per week are given to work in the Physical Laboratory, amounting to six hours' actual laboratory work. In the Junior and Senior years about one-half of the time of the students is given to special work in electricity and kindred subjects.

Graduates in the Department of Electrical Engineering receive the Degree of Electrical Engineer.

The laboratories are large and well arranged.

The *General Laboratory of Physics* is thirty by sixty feet in dimensions, well lighted and convenient. The ceiling is high, and ample wall space is provided for permanent pieces of apparatus. Gas, electricity, compressed air, etc., are close at hand.

The main *Electrical Laboratory* is also thirty by sixty feet in dimensions. This room is fitted up with all the appliances required in such a laboratory. The dynamo collection consists of representative types of continuous and alternating current generators and motors, lamp banks, water rheostats, brakes, etc.; and the necessary

instruments are supplied for loading and testing motors and generators.

A transformer collection to show the representative American types is being made.

The laboratory is supplied from the Edison Illuminating Company's station with continuous currents at one hundred and ten and two hundred and twenty volts, and with alternating current at sixty frequency. Other pressures can be obtained from generators in the laboratory; and alternating and polyphase currents of other frequencies can be generated at will by means of alternators and rotary converters. Galvanometers of all kinds, batteries, commercial testing instruments, etc., are in constant use.

The *Testing Laboratory* is twenty-five feet long by twenty-one feet wide. It contains the necessary delicate instruments for testing, among which are a Thomson Quadrant Electrometer, a Thomson Reflecting Astatic Galvanometer, Tripod Galvanometers, Resistance Boxes, Ballistic Galvanometers, Condensers, etc.

The *Photometric Laboratory* or *Dark Room* is twenty-three feet square. It is papered with dead black paper, is high and well ventilated. It contains apparatus for the determination of the illuminating power of various illuminants. It is well supplied with gas meters, wet and dry, and with apparatus for making measurements of the illuminating power of electric lamps. Photographic apparatus, for scientific purposes, is used in this laboratory.

The *Spectroscopic Laboratory* is twenty-five feet long by twenty-one feet wide. It contains spectroscopes of the best makers. This room is also used as the Microscopic

Laboratory. The Department is well supplied with microscopes.

The *Shop* contains a seven horse power Otto gas engine, besides a fifteen and a twenty horse power electric motor. There are lathes, emery wheels, and the other usual appliances of a repair shop.

The *Apparatus Room* is stocked with the latest and best instruments.

The *Lecture Room* is large, well lighted, and supplied with all the conveniences for table experiments. Steam, compressed air, gas, electricity, and sunlight are very carefully arranged for.

In addition to the dynamos and motors owned by the College, the students have access to the Edison and municipal plants and to the finely equipped electric railways of the city.

The *Physical and Electrical Library* is well stocked with the standard works on electrical and other subjects, and is kept up to the times by the constant addition of foreign and home periodicals. The latest advances in physical science are announced to the classes, and reports, written and oral, are made by the students upon them. The Library, in connection with the Laboratory, is regarded as an exceedingly important instrument of instruction.

The studies of the Freshman year are the same as in the Civil Engineering Course. (See page 74.)

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytical Geometry and Differential Calculus	5
DESCRIPTIVE GEOMETRY (Hall)	2

	HOURS.
MODERN LANGUAGES.—French	2
German	2
English (Trench on The Study of Words)	2
PHYSICS.—Laboratory. Method of Physical Measurements (Moore)	2
CHEMISTRY	2
THE BIBLE	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	3
MODERN LANGUAGES.—French, 2; German, 2; Rhetoric, 1	5
PHYSICS.—Laboratory. Statics. Hydrostatics	2
CHEMISTRY.—Laboratory	2
THE BIBLE	1

Third Term.

MECHANICS.—Elements of Mechanics (Moore)	4
MATHEMATICS.—Integral Calculus (Hall), Differential Equations, and Least Squares	5
DRAWING	2
CHEMISTRY	2
PHYSICS.—Laboratory. Heat	2
THE BIBLE	1

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Electricity. Lectures and Recitations	4
PHYSICAL LABORATORY.—Electricity	2
ELEMENTS OF MECHANISM	2
APPLIED MECHANICS	4
DRAWING.—Descriptive Geometry	4
MINERALOGY	2
THE BIBLE	1

Second Term.

APPLIED MECHANICS	4
RESISTANCE OF MATERIALS	3
PHYSICS.—Acoustics. Optics. Lectures and Recitations	4
ELECTRICAL ENGINEERING	2
PHYSICAL LABORATORY.—Electrical Measurements	2

	HOURS.
UNITED STATES CONSTITUTION	2
THE BIBLE	1

Third Term.

ELECTRICAL ENGINEERING.—Dynamo Electric Machinery . .	2
Laboratory	2
RESISTANCE OF MATERIALS	3
STEAM ENGINE	4
MINERALOGY	3
THE BIBLE	1
THEMES.	

SENIOR YEAR.

First Term.

ELECTRICAL ENGINEERING.—Dynamo Electric Machinery . .	6
Laboratory. Electrical Testing	2
HYDRAULICS	5
DRAWING.—Machine Designing and Drawing	2
THE BIBLE	1

Second Term.

ELECTRICAL ENGINEERING.—Alternating Currents	6
Electric Transmission	3
The Electric Telegraph	1
Laboratory	3
POLITICAL ECONOMY	2
THE BIBLE	1

Third Term.

ELECTRICAL ENGINEERING.—Alternating Current Machinery .	6
The Electric Railroad	3
The Telephone	2
Laboratory—Electrical Testing	2
Designs for and Reviews of Electrical Engineering Works.	
HISTORY	2
THE BIBLE	1

THESIS.

Each term throughout the course—Elocution.

NOTE.—Laboratory work, as herein stated in "hours," represents three hours of actual work, the "hour" indicating a "period" of that length.

COURSE IN CHEMISTRY.

Professor Hart and Messrs. Bryden and Turrentine.

The aim of this course is to fit young men for practical work in chemistry, either as chemists in iron and steel works, in manufacturing establishments, or as chemical manufacturers. Great attention is paid to Analytical Chemistry, and especially to the chemistry of cement and the chemistry and metallurgy of iron and steel. Graduates are fitted to take paid positions as chemists immediately upon graduation. For men of the proper character immediate and remunerative employment can be secured.

This course will also be found an excellent preparation for the study of Medicine.

While the instruction centres in the two branches of

CHEMISTRY AND METALLURGY,

the course aims to supply a thorough education along the lines most necessary for a successful career as a responsible chemist. The same instruction in the Bible, in Mathematics, Physics, the Natural Sciences, English, French, and German, which is required in the ENGINEERING COURSES, is required here, as will be seen in the synopsis. The study begins with a course of lectures on General Chemistry combined with the study of a text-book. In connection with these lectures each student is required to work in the Laboratory. Following the course in General Chemistry comes a thorough drill in Qualitative Analysis in connection with frequent recitations. The beginner is encouraged to work out and use methods of separation

not laid down in the book. A thorough drill in chemical arithmetic forms part of this course.

During the Freshman year a course in Organic Chemistry is given, followed by a course in Theoretical Chemistry and a review of the Organic Chemistry. Instruction in these subjects is given by means of lectures, recitations, and laboratory work in the preparation of selected compounds.

Thorough courses are also given in Volumetric Analysis, Assaying, Metallurgy, and Technology. The course in Metallurgy has been greatly enlarged and improved. A large part of the time is now spent in the laboratory, which has a new equipment. There are optional courses during Junior year in Blowing and Grinding Glass, and in the reading of German in Scientific Text.

During Senior year the student is required to carry on an investigation upon some chemical subject, and to write a thesis giving the results of his work. He is thus thrown entirely upon his own resources, and the training secured is invaluable as a preparation for work after leaving college.

In Quantitative Analysis accuracy is insisted on as the first requisite, and slovenly work is discouraged in every possible way. The following substances are analyzed:—

IRON in Iron Wire.

LIMESTONE (Silica, Iron, Alumina and Phosphoric Acid, Lime, Magnesia, Carbon Dioxide).

LIMONITE.—Complete Analysis.

CEMENT.—Analysis.

BLAST-FURNACE CINDER.—Silica.

COAL.—Moisture, Volatile, Coke, Ash, Sulphur, Phosphorus.

PIG IRON.—Silicon, Phosphorus, Carbon (combined and graphitic), Sulphur.

SPIEGELEISEN.—Manganese.

TITANIFEROUS IRON ORE.—Titanic Acid.

COPPER ORE.—Copper by Battery.

ZINC ORE.—Zinc, Manganese.

COMMERCIAL FERTILIZERS.—Potash, Nitrogen, Phosphoric Acid, soluble, insoluble, and total.

WATER ANALYSIS.—Total Solids, Chlorine, Sulphates, Free and Albuminoid Ammonia, Nitrates and Nitrites.

GAS ANALYSIS.—Carbon Monoxide and Dioxide, Hydrogen, and Methane.

MINERAL OIL in Lubricating Oil, Fire and Flash Tests, Gravity and Viscosity.

ELEMENTARY ORGANIC ANALYSIS.

Students who are looking forward to the study of Medicine after graduation are allowed to substitute work in Toxicology for a part of the work laid down above.

Partial or special students may enter the laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

This department is now housed in Gayley Hall, a fine new fire-proof building erected especially for it by James Gayley, of the Board of Trustees. This building contains four large and several smaller laboratories, lecture rooms, quiz room, assay laboratory, metallurgical laboratory, crystallizing and gas analysis rooms.

Large additions have been made to the equipment within the past year. The assay room contains two new Burlingame furnaces. The metallurgical laboratory con-

tains a full shop equipment, grinding machinery and electrical furnaces for roasting ores at uniform temperatures. There is also an electric pyrometer for testing the heat treatment of metals. Throughout the different laboratories no expense or pains have been spared to bring them into harmony with the best current practice. A course of lectures, mostly by graduates of the departments now engaged in practical work, is given annually in the lecture room of Gayley Hall.

The Henry W. Oliver Chemical and Metallurgical Library has a separate room in this building, and is open to students during study hours and on Monday, Tuesday, Thursday and Friday evenings from seven to ten o'clock. This library was endowed by Henry W. Oliver, of Pittsburg. The collection of chemical books formerly belonging to the college has been added to it by vote of the Trustees and considerable additions are annually made by purchase and gifts. Last year a complete and very beautiful set of the *Berichte der Deutschen Chemischen Gesellschaft* and numerous single volumes and dictionaries were acquired. This library now contains about 1,500 volumes.

In addition, the students have access to Professor Hart's private chemical library, embracing about one thousand volumes. These libraries contain full sets of the *American Journal of Science*, *Dingler's Polytechnisches Journal*, *Wagner's Jahresbericht*, *Journal of the Society of Chemical Industry*, *Fresenius Zeitschrift*, *American Chemical Journal*, *The Journal of The American Chemical Society*, *Zeitschrift für Angewandte Chemie*, *Zeitschrift für Anorganische Chemie*, *Zeitschrift für Physikalische Chemie*, *Ber-*

ichte der Deutschen Chemischen Gesellschaft, and nearly complete sets of *Liebig's Annalen*, *Annales de Chimie*, and partial sets of the *Comptes Rendus*, *Bulletin de la Societ  Chimique*, *Journal f r Praktische Chemie*, *Chemical News*, *Journal of the Chemical Society*, *Chemisches Centralblatt*, and many dictionaries and special works upon Chemistry.

SYNOPSIS.

CHEMICAL COURSE.

FRESHMAN YEAR.

First Term.

	HOURS.
MATHEMATICS.—Algebra	4
CHEMISTRY.—Lectures and Recitations (Hart)	4
MODERN LANGUAGES.—German Grammar and Translations	2
English	2
DRAWING.—Elements of Industrial Drawing; Plane Problems,	2
HYGIENE.—Lectures	1
THE BIBLE.—Old Testament	1

Second Term.

MATHEMATICS.—Plane Trigonometry	5
CHEMISTRY.—Lecture and Laboratory Practice	2
MODERN LANGUAGES.—German (2), French (2), English (2),	6
DRAWING.—Projections	2
THE BIBLE.—Old Testament	1

Third Term.

MATHEMATICS.—Spherical Trigonometry (Wentworth); Men- suration (Hall), Plane Analytic Geometry	5
CHEMISTRY	2
MODERN LANGUAGES.—French (2), German (2), English (2)	6
DRAWING.—Projections. Model Drawing. Plotting Surveys	2
THE BIBLE.—New Testament	1

Throughout the year—Themes and written Translations into English from French and German.

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytic Geometry; Differential Calculus (Hall)	5
DESCRIPTIVE GEOMETRY	2
CHEMISTRY	4
MODERN LANGUAGES.—French (2), German (2)	4
English (Trench)	2
THE BIBLE.—The Acts, in French	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
ANALYTICAL CHEMISTRY	4
MODERN LANGUAGES.—German (2), French (2)	4
English, Rhetoric	1
THE BIBLE.—The Acts	1

Third Term.

MECHANICS.—Elements of Mechanics (Moore)	4
ANALYTICAL CHEMISTRY.—Laboratory	10
BOTANY.—Field work (6 hours per week)	2
THE BIBLE.—The Acts	1

Throughout the year—Declamations and Themes.

JUNIOR YEAR.

PHYSICS.—Heat, Electricity, Magnetism, Optics, and Acoustics. (First two terms)	4
CHEMISTRY.—Theoretical and Practical, including Qualitative and Quantitative Analysis, and Laboratory work in Organic Chemistry, and in Assaying. (8 hours first and second terms; 12 hours third term)	8-12
GEOLOGY.—General and Economic. (Third term)	4
THE BIBLE.—New Testament Epistles, in German	1

Throughout the year—Declamations and Themes.

SENIOR YEAR.

	HOURS.
CHEMISTRY.—Advanced work in all departments of Chemistry, Metallurgy, Chemical Technology, with special work in some selected department. (14 hours first term; 12 hours second term; 14 hours third term)	12-14
POLITICAL ECONOMY.—General Principles. (Second term) . .	2
HISTORY.—Lectures on the development of European institutions. (Third term)	2
THE BIBLE.—History and Evidences	1
<i>Throughout the year</i> —Themes and Extemporaneous Speaking.	
Practice in the preparation of Chemical theses.	

GENERAL INFORMATION.

ATTENDANCE.

Attendance on all College exercises is strictly required. Absences on account of sickness, or for other satisfactory cause, may be excused, and leave of absence will be granted at the request of parents when absolutely necessary. In such cases the absence is excused, but the student is invariably required to make up such work as he may lose by reason of his absence. Reports are sent to parents whenever the absences of their sons exceed a reasonable number. In case of the absences becoming excessive, the Faculty will punish the neglect with suspension. Absences incurred at the beginning and end of terms, especially if they involve absence from examinations, and immediately preceding and succeeding holidays, are regarded with especial disapproval and under ordinary circumstances will not be excused.

Each student is expected to have sixteen recitations each week. Three hours of field or laboratory work are regarded as equivalent to one recitation period. The regular gymnasium drills are also regarded as required exercises so far as prescribed. No student is permitted to take a course involving fewer hours of recitation without a special vote of the Faculty.

EXAMINATIONS.

Examinations are held at the close of each term on the studies of that term, and may be either written or oral, or both, at the option of the professor in charge. In addition to these regular examinations, partial examina-

tions and written recitations are held from time to time during the term, with or without notice to the students. Failure to attend an examination, except for reasons of absolute necessity, is regarded as a serious delinquency, and will be dealt with according to the circumstances of each case.

STANDING.

The scholarship of students is determined by the results of the examinations and daily recitations combined.

Students entering with conditions are required to make them up before the end of the term next after that in which they enter.

Students failing to pass in any studies of any term are required to make up such studies before the end of the next term, and they may be specially directed to do so at an earlier date. Students who do not comply with these regulations will be put on probation in scholarship, or lose standing and be only "permitted to recite," or be dropped into the next lower class, as the Faculty may, in each case, decide.

Reports of the standing of the students are made to their parents or guardians at the end of each term.

GRADUATION.

Students who have pursued the entire course as prescribed and have successfully passed their examinations are recommended to the Trustees for the first academic degree in course. Such recommendations are ordinarily acted upon and the degrees are conferred at Commence-

ment, at which time the students receive diplomas from the President of the College. At Commencement the Faculty award such honors as it sees fit to those who are to receive degrees. These honors ordinarily consist of a valedictory oration, a Latin salutatory, and other honorary orations and theses.

COMMENCEMENT.

The third Wednesday in June and the three days immediately preceding it are set apart for the exercises in connection with the annual Commencement. On Sunday, the first of these days, a Baccalaureate sermon is preached in the College Chapel at eleven o'clock in the morning; and in the evening a sermon is preached in the auditorium of Pardee Hall before the Brainerd Society of the College by some distinguished minister selected by the Society.

The preacher for 1902 was Rev. James I. Good, D. D., '72, of Reading, Pa.

On Monday the Senior Class holds its Class Day exercises on the campus. On Class Day, 1901, the Class of 1901 gave the College as a parting gift a mural tablet in memory of Rev. Thomas Conrad Porter, D. D., LL. D., which was placed in the College Chapel.

The Alumni and Literary Societies hold their reunions on Tuesday, and orations are delivered before the respective societies in the Society Halls. The annual address before the Alumni in 1902 was delivered by James Whitfield Wood, Esq., '66, of Easton, with informal addresses by several representatives of reunion classes.

The regular Commencement exercises are held in the auditorium of Pardee Hall on Wednesday morning, the afternoon being occupied by the Alumni dinner. All these exercises are open to the public, who are cordially urged to be present. Various other exercises of an athletic or social nature are conducted on the part of the students under a general supervision by the Faculty.

DEGREES.

THE FIRST DEGREE.—The degree of *Bachelor of Arts* is conferred on the graduates of the Classical Course; *Bachelor of Philosophy*, on those of the Latin Scientific Course; *Bachelor of Science*, on those of the General Scientific Course; *Bachelor of Science* (in Chemistry), on those of the Chemical Course; *Civil Engineer*, on those of the Civil Engineering Course; *Engineer of Mines*, on those of the Mining Engineering Course; *Electrical Engineer*, on those of the Electrical Engineering Course.

MASTER'S DEGREE.

MASTER OF ARTS.—The degree of *Master of Arts* may be conferred one year after graduation on any *Bachelor of Arts* who has pursued a prescribed course of study, equivalent to sixteen recitations per week during one year in residence, passed the examinations, and presented a satisfactory thesis.

The same degree may be conferred two years after graduation on any *Bachelor of Arts* who shall have devoted at least one year exclusively to advanced study under the direction of the Faculty, passed examinations in the studies pursued, and presented a satisfactory thesis.

Candidates for this degree must in all cases register on or before October 1st, and examinations must be held at the College at least once in each College term. Theses must be presented for approval not later than May 1st. A registration fee of \$5 and tuition fee of \$100 per annum for residents, and \$45 per annum for non-residents, is exacted of all graduate students.

MASTER OF SCIENCE.—The degree of *Master of Science* may be conferred upon any graduate of the Scientific Department upon conditions similar to those prescribed for the degree of Master of Arts.

These rules shall not prevent those who have graduated from the College prior to July 1st, 1900, from receiving the Master's degree upon application, setting forth that they have spent at least three years in, and successfully completed, a course of study in Law, Medicine, or Theology, or spent three years with success in teaching or in professional scientific employment.

DOCTOR OF PHILOSOPHY AND OF LETTERS.

The degree of *Doctor of Philosophy* may be conferred three years after graduation on any college graduate who, during three years of continuous residence at the College, shall have devoted himself exclusively to advanced studies under the direction of the Faculty, passed examinations in them, and presented a satisfactory thesis. The candidate must designate three branches of study which he desires to pursue, each in a different department, one major or principal study, and two minor studies.

The regulations governing registration, examination, theses, and fees are the same as for the Master's degree.

Any graduate of a recognized college may be permitted to pursue graduate studies under the direction of the professors in the various departments upon satisfactory evidence of his fitness to do so. No curriculum is prescribed for such students. A course of study is usually arranged after consultation which will meet the specific object each student has in view.

CERTIFICATES.

Students who have been admitted to any department of the College, and have passed satisfactory examinations therein, may obtain certificates of the work which they have done if they have been in attendance not less than one year.

RELIGIOUS INSTRUCTION.

The aim of Lafayette College is distinctly religious. Under the general direction of the Synod of Pennsylvania of the Presbyterian Church its instruction is in full sympathy with the doctrines of that body. At the same time religious instruction is carried on with a view to a broad and general development of Christian manhood within the lines of general acceptance among evangelical Christians, the points of agreement, rather than those of disagreement, being dwelt upon.

Prayers are held each morning in the Chapel at 7.50 and religious services in the Chapel Sunday mornings at 11 o'clock. All students are expected to attend these services. No exceptions will be made to this rule for morning prayers. Where there is some exceptional reason assigned by the parents, students will be permitted to attend one of the churches in Easton instead of the Sunday morning service. This permission will only be granted on request of parents and for sufficient reason.

Special sermons are preached before the College from time to time by distinguished ministers. The preachers for 1902 were Rev. D. M. Buchanan, Mauch Chunk; Rev. M. L. Cook, '73, Wyalusing; Rev. John R. Davies, D. D., '81, Philadelphia; Rev. Joseph F. Dripps, D. D., Germantown; Rev. John Fox, D. D., '72, New York; Rev. James W. Gilland, D. D., '77, Shamokin; Rev. James I. Good, D. D., '72, Reading; Rev. A. Woodruff Halsey, D. D., New York City; Rev. Charles Lee, Carbondale; Rev. C. P. Murray, Cleveland, Ohio; Rev. James Roberts,

D. D., '65, Ambler ; Rev. Virgil E. Rohrer, Wissahickon ; Rev. R. Howard Taylor, Baltimore, Md. ; Rev. James I. Vance, D. D., Newark, N. J., and a number of neighboring clergymen.

The preacher for the Day of Prayer for Colleges, 1902, was Rev. James I. Vance, D. D., of Newark, N. J.

Instruction in the Bible has always held a prominent place in the College, and a full account of the courses in Bible study will be found on page 17.

LECTURES.

Special courses of lectures are given annually in connection with several departments and will be found under those departments. A more general course of a popular character is given each year.

Among those who have given lectures during the year 1902 are Mr. Charles W. Hand, New York City ; Prof. Ulric Dahlgren, Princeton, N. J. ; John Sparhawk, Esq., Philadelphia ; Brewer Eddy, Canada ; W. H. Dudley, M. D., Easton ; Edward J. Fox, Esq., '78, Easton ; L. D. Godschall, '87, Grand Encampment, Wyoming ; William Walley Davis, '89, Roanoke, Va. ; Albert H. Welles, '91 Wilkesbarre ; O. O. Laudig, '92, Chicago, Ill. ; Ernest B. McCready, '95, Allentown ; Robert E. Divine, '99, Buffalo, N. Y. ; J. C. Heckman, '99, Buffalo, N. Y. ; Charles H. Larkin, '99, Buffalo, N. Y.

TERMS AND VACATIONS.

The College year is divided into three terms, with intervening vacations, as given in the Calendar on page 5.

All the classes are examined at the close of each term and a report sent to the parent or guardian. Students are required to be present punctually at the beginning of each term, and are not allowed during term-time to be absent from town, except by written permission from the President.

The Wednesday after the 20th of October in each year is observed as Founders' Day, in memory of those who founded the College and of those who have since contributed to its usefulness. On Founders' Day, 1902 an address was delivered by Rev. John Balcom Shaw, D. D., of the Class of 1884, pastor of the West End Presbyterian Church, New York City, on the occasion of the dedication of the Brainerd Hall.

BUILDINGS. LABORATORIES. LIBRARIES.

The College grounds are situated upon the summit of a beautiful hill, overlooking the city of Easton. They are reached by a flight of stone steps, which ascend the bold front of the hill directly from the head of Third Street, or by electric cars, which skirt the face of the hill by a gradual incline. At the head of the steps stands the monument erected by the Alumni Association to their comrades who "died for the Union." The grounds contain about forty acres, terraced and laid out under the direction of Donald G. Mitchell. The buildings upon the campus are thirty in number. The oldest of these is

SOUTH COLLEGE.

The central portion of this structure is the original College building, erected in 1833. It contains a number

of lecture-rooms, "Brainerd Hall," the home of the Christian Association of the College, and a number of dormitory rooms. Two wings have been added to the original building, which contains the College Chapel and lecture-rooms for the English, Latin, and Greek Departments and the laboratory of the Biological Department. A new pipe organ, the gift of the Class of 1874, and an electric chandelier, the gift of the Class of 1900, were placed in the College Chapel in 1900.

THE VAN WICKLE MEMORIAL LIBRARY.

The Van Wickle Library was dedicated on May 30th, 1900. It has given to the College one of the most needed additions to its equipment. A beautiful building of Pompeian brick and terra cotta, thoroughly furnished with the most approved appliances for library work, it is at once a most beautiful and useful feature in the College's development. It contains a large reading room, in which the periodicals and books of most constant reference are to be found; a reference book department; a large room for the general storage of the Library; Librarian's room, and small rooms for special work. Mrs. Van Wickle has placed in the reading room a memorial window, executed by Tiffany & Co., representing Sir Philip Sidney at the Siege of Zutphen.

PARDEE HALL. .

The most commanding position on the campus is occupied by this building, the most conspicuous evidence of the liberality of the late Ario Pardee, which reached to every department of the College. Here the departments of Civil, Mining, and Electrical Engineering are supplied

with thoroughly-equipped laboratories and lecture-rooms and the museums of these departments, and of General Geology, Mineralogy, and Natural History, are to be found. The Ward Library and the handsome rooms of the two Literary Societies are also in this building, and the central portion of the second and third floors of the main building contains a beautiful auditorium, in which the Commencement exercises, lectures, and other public entertainments are held.

JENKS BIOLOGICAL HALL.

This building was erected in 1864-5 by the late Barton H. Jenks, of Philadelphia. It was for a long time devoted to the work of the Chemical Department. During the past year, however, it has been entirely remodeled in its interior to adapt it to the uses of the Biological Department.

THE GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY,

Completed in 1902, is occupied by the departments of Chemistry and Metallurgy. The building consists of three stories, and is constructed of Indiana stone, Colonial brick, and gray terra cotta. It is fireproof, with steel and cement floors, and gives a thoroughly modern equipment to these departments. This building contains also the Henry W. Oliver Chemical and Metallurgical Library.

THE ASTRONOMICAL OBSERVATORY,

In addition to the observatory proper, contains a lecture-room, with accommodations for the students in Astronomy.

WEST COLLEGE

Contains the lecture-room of Dr. Francis A. March and the offices of the Registrar and Treasurer of the College.

THE GYMNASIUM,

which has already been sufficiently described on page 19, contains a complete equipment for physical training.

THE DORMITORIES.

A complete reorganization of the dormitory system was effected in the summer of 1900 by the building of central structures, known as Knox and Fayerweather Halls, to connect Blair and Newkirk Halls and Martien and Powell Halls respectively, and the facing of the completed buildings with mottled Pompeian brick, handsomely trimmed with red terra cotta. The architectural beauty of the buildings is in marked contrast with the former appearance of the separate buildings. These halls are connected with McKeen Hall in a common steam plant. A complete sanitary plumbing system of baths, sinks, closets, and electric lights have been installed in all the buildings. These improvements leave nothing to be desired for the health and comfort of the students.

INFIRMARY.

A building on the extreme northeast corner of the campus, facing upon McCartney Street, is set apart for the use of sick students, thus securing quiet and complete isolation in case of the occurrence of any contagious disease.

BRAINERD HALL.

A building for the Y. M. C. A., the gift of J. Renwick Hogg, Esq., '78, of the Board of Trustees, was completed

and dedicated on October 22d, 1902. It is a three-story gray stone building in the Tudor Gothic style. It contains a large room for the meetings of the society, and reading, writing, and committee rooms; also a trophy room for the Athletic Association, a room for the collection of curios from foreign missionary fields, and bowling alleys in the basement.

Its object is to afford a home under active Christian influences for all forms of student life.

The remaining buildings consist of a large GREENHOUSE, a useful adjunct to the department of Botany, and also supplying flowers and plants for the adornment of the grounds in summer and of the buildings on public occasions. Besides these, a number of buildings are occupied as the HOMES OF THE MEMBERS OF THE FACULTY. The intimate relations resulting from the residence of both Faculty and students upon the college grounds is regarded as one of the most wholesome features of the college life.

LIBRARIES AND READING-ROOM.

The College has two libraries, the regular College Library, which occupies the Van Wickle Memorial Library, described above, and the Ward Library in Pardee Hall. The College Library was established at the foundation of the College, and has had a steady and uninterrupted growth since 1832, and is chiefly made up of books bearing directly on the courses of instruction. The Ward Library, the gift of the heirs of C. L. Ward, Esq., of Towanda, is largely made up of books of general literature and history and Political Science. Each of the

Technical Departments has also a collection of books, magazines, and other scientific publications in rooms in immediate connection with their lecture rooms and laboratories. By the gift of \$5000 Mr. Henry W. Oliver laid the foundation of the H. W. Oliver Chemical Library in the new Gayley Laboratory. The foundation has been added to by gifts from Prof. Edward Hart and the incorporation of the College's collection of chemical works. The Literary Societies, also, have libraries numbering about 6000 volumes, largely of a literary character, which valuably supplement the more solid libraries of the College.

The College Library contains a papyrus scroll, five feet long, from a mummy at Thebes, with a hieratic inscription—pronounced by Seyffarth the finest he has seen—presented by the late Hon. John W. Garrett, of Baltimore, of the Class of '37.

There is also a full-length portrait of Lafayette, painted by Healey at the Chateau LaGrange, from Ary Sheffer's famous painting, and presented by the late Dr. Thomas W. Evans, of Paris.

The LIBRARIES have received gifts, which are hereby gratefully acknowledged, from the following individuals and institutions:—

Rev. J. S. Axtell, '71; Joshua L. Bailey; T. W. Balch; E. H. Barnes, '04; J. Turner Brakeley; Class of '74; Class of '76; Class of '03; Rev. E. C. Cline, '57; Prof. S. J. Coffin, '58; William Cowper Conant; Rev. Luther Davis, '91; Delta Kappa Epsilon Fraternity; Rev. E. Ferrier, D. D., '54; W. Gibson Field, Esq., '62; Rev. W. H. Filson, '68, forty-one volumes; Walter G. Forsythe; E. J. Fox, Esq., '78; L. F. Gates, '97, six volumes; D. L. Glover, '90; Dr. Traill Green's family, two hundred and fifty-eight volumes; Dr. George

C. Heckman's family, twenty-three volumes; Lieut.-Col. John Van R. Hoff, Deputy Surgeon-General, U. S. A.; Rev. David M. James, D. D., '52, forty-nine volumes; Johns Hopkins University; Kansas Department of Agriculture; Rev. J. Harper Leiper; Charles H. Lerch, '82; Library of Congress; David A. McBride, '98; Ernest B. McCready, '95, nine volumes; Robert P. McCready, '99; International Committee, Y. M. C. A.; Charles McIntire, M. D., '68; Maryland Geological Survey; New Jersey State Geologist; New Jersey Historical Society; New Jersey State Board of Health; New York State Historical Society; Hon. Hugh Hastings, New York State Historian, five volumes; New York Commissioners of Niagara Reservation; Norwegian North Atlantic Expedition; Peabody Institute Library; Pennsylvania Society of New York; Pennsylvania State Library, twenty-eight volumes; Presbyterian General Assembly; Rev. J. F. L. Raschen; F. W. Stonecipher, '99; Rev. J. F. Stonecipher, '74; Gen. Frank Reeder, fifty-eight volumes; Royal Society of Canada; Dr. Emily N. Titus; Publisher of *The Touchstone*, six volumes; Trustees of Columbia College, New York; United States Department of Agriculture; United States Navy Department; United States Bureau of Ethnology; United States Civil Service Commission; United States Department of the Interior; United States Department of Labor; United States Department of State; United States War Department; United States Smithsonian Institution; University of Geneva; University of Michigan; University of Toronto; Western Theological Seminary; Ethan Allen Weaver, C. E., '74; Mrs. I. W. Schultz.

The Class of 1892 at their decennial reunion in 1902 subscribed the sum of \$500 to establish an alcove in the Library.

SCIENTIFIC COLLECTIONS.

These are extensive and valuable, and are rapidly increasing from year to year by gifts from societies and individual donors, and by special appropriations in addition to the fees for registration and matriculation.

Among the most valuable of the collections may be mentioned the extensive Herbarium, collected by Prof. Thos. C. Porter during forty years of enthusiastic labor; it is specially rich in North American plants, and is believed to contain the most complete Flora

of Pennsylvania in existence ; the series of Ward's celebrated casts, illustrating Geology and Palæontology, together with the specimens purchased for the College by Prof. Hitchcock in Europe.

The apparatus in the Department of Physics and Applied Mechanics, the instruments used in the Departments of Astronomy and Engineering, and the scientific equipment of the numerous and extensive laboratories, meet the demands of advanced instruction in these departments ; a special feature, however, is the series of nine hundred Wall Charts, executed at the College by Gustave Garnier, under the direction of the Professors in the Departments of Astronomy, Chemistry, Physics and Applied Mechanics, Metallurgy, and Natural History. There are valuable models in Machine Drawing, Stone Cutting, Crystallography, and Architecture.

COLLEGE SOCIETIES.

LITERARY SOCIETIES.

The *Washington* and *Franklin* Societies were organized early in the history of the College and are conducted by the undergraduates. Both Societies have well-furnished apartments in Pardee Hall, and valuable libraries. They meet every Wednesday evening for literary exercises, consisting of orations, essays, and debates. A generous rivalry for College honors exists between them, and each year representatives of the two societies from the Junior Class engage in a public contest in oratory. On the day before Commencement the societies hold reunion meetings in their halls. These societies are an important part of College life and work, and *all the students are strongly advised to join them.*

BRAINERD EVANGELICAL SOCIETY.

The *Brainerd Evangelical Society*, as a society of inquiry, meets each Thursday evening and on the first

Friday of each month in the interest of missions, and for the promotion of Christian effort. Its public anniversary is held on Sabbath evening of Commencement week, at which time a sermon is preached usually by some former member of the Society. In 1902 the preacher was Rev. James I. Good, D. D., '72, of the Reformed Church, Reading, Pa.

The Society has great satisfaction in the completion of the building erected for its use by Mr. J. Renwick Hogg, '78. This beautiful and commodious edifice should mark an era of increased usefulness in the history of Y. M. C. A. work in the College.

BIOLOGICAL SOCIETY.

The *Biological Society* is for the purpose of making its members intelligent concerning the important biological questions of the day, and enabling them to appreciate the value of research in nature. The membership consists of those students of the three upper classes who are either prospective or present members of the classes in Biology, and of such graduate students as are interested in the laws of life comprehended through the Natural History Sciences.

It meets the second Thursday night of each month, when a lecture is given or a paper is read reviewing the chief articles in recent biological literature. The following subjects have been discussed lately: Cell Anatomy, Nature as Recorded by the Camera, The Essential Anatomy of the Eye, The Fertilization of Flowers through the Agency of Insects, and the Vascular System of Vertebrates.

SCIENTIFIC SOCIETY.

The *Scientific Society* has for its object the preparation and discussion of papers on engineering, chemical, or allied subjects. Laboratory students have the opportunity of working on original investigations, and communicating the results to the society.

EXPENSES.

The tuition is \$100 per annum in all departments. Sons of ministers of the Presbyterian Church and candidates for its ministry receive free tuition in the Classical Course, and are charged one-half tuition in the Technical courses.

The other College charges are as follows:—

General Expenses	\$8 00	a term.
Library and Reading-room	2 00	“
Gymnasium	2 00	“

The annual College charges are, therefore, for those who pay tuition in full, \$136.

Entrance Fees.—Each student pays \$5 when he is registered for examination on entering College, and \$10 when he is matriculated, thirty days afterward. These fees are appropriated to the Library Fund and to the increase of the scientific collections and apparatus. No fees are charged for diplomas.

Laboratories.—Apparatus for the use of students in the Chemical Laboratories will be furnished and charged in their account, and the charge canceled for that returned in good condition. Chemicals and all other materials will be charged according to the average cost. A deposit sufficient to meet these expenses is made on entering the

Laboratories. Members of the Classical Department are admitted to all the privileges of the Laboratories while studying General Chemistry, and, for the present, without charge for the aid of the professor in attendance; each student will, however, pay for chemicals which he uses, and for any apparatus which he may break or injure. In the Physical Laboratory a fixed charge of \$5 per term is made for supplies and the use of apparatus.

Scholarships.—For the present the scholarships securing free tuition in the Classical Course will hold good for the Pardee Scientific Department, unless the student shall select Technical Studies, in which case he must pay each term one-half of the regular fee for tuition.

Aid is also given to young men of ability and good moral character who are dependent on their own efforts for their education. The amount will depend on the necessities of the applicant, but in no case will exceed the amount of the tuition fees in the Classical and Latin Scientific Courses, or one-half the tuition fees in the Technical Courses. Application for such aid should be made to the President.

BOARD, ROOMS, WASHING.

In all cases the place of boarding must be approved by the Faculty. The price of table board in clubs managed by the students at present averages about \$3 per week. Board, including furnished room, in private families, is from \$4.50 to \$6 per week. Washing costs 40 cents per dozen pieces.

Unfurnished rooms in the College buildings rent for \$5 to \$30 a term (average \$15.88); unfurnished rooms

adjacent to the College premises for \$12 to \$16 a term, or furnished rooms for \$15 to \$30 a term.

Students are expected to room in the College dormitories unless they receive permission to room elsewhere. If they do not occupy College rooms, they are subject to an assessment to meet the loss to the College for rooms left vacant. The reason for this rule is that the funds of the College have been invested in the dormitories in order to secure cheap and convenient lodgings for the students, and it is to the advantage of all that the buildings should be occupied, the income from the investment being essential to the work of the College, and the students being protected against exorbitant rents.

Information in regard to the selection of rooms can be had from Professor Moore, Inspector of College buildings, the buildings being open for inspection during each term, and three days preceding the first day of each term. Rooms are assigned only to students who have been admitted to College, or who present full certificates from authorized schools, in the order of their application.

The College charges must be paid each term in advance, also the room rent when the student occupies a room in the College buildings.

The care and regulation of the dormitories are under the direction and management of a Board of House Representatives, elected by the students. House rules are enacted and enforced by the Board. The Parietal Committee, composed of the Inspector of Buildings and Officers of Instruction who reside in the dormitories, acts as a court of appeal.

Board of House Representatives.—Jesse H. Miller, President, 139 Fayerweather Hall; Warren Stoutnour, Secretary, 12 South College; Fred Falkner, 66 Blair, Hall; William J. Welsh, Jr., 76 Knox Hall; William L. Jacobus, 85 Newkirk Hall; Albert L. Hill, 100 McKeen Hall; William M. Smith, 133 Martien Hall; Edmund F. Ferer, 147 Powell Hall; Robert B. Hitchcock 165 East Hall.

Fuel Deposit.—The Treasurer also, on behalf of the Committee of Students, collects with the College bills at the beginning of the first term \$7, and of the second term \$5, for fuel. The unexpended balance is refunded by the Committee at the close of the year. Of late the average cost for heating has been \$12.68 for each student in the steam-heated dormitories, and \$6.98 in the buildings heated by warm-air furnaces or stoves. The steam-heated dormitories are also lighted by electricity, the cost of which to each of the occupants is about \$6 a year.

A deposit of \$1 is also made at the beginning of each term to pay for public damages, the unexpended balance of which is returned to the student at the end of the year.

Annual Expenses.—Some money for books and other incidental expenses will be needed; but, with close economy, the total annual expenses—exclusive of tuition, clothing, and traveling expenses—need not exceed \$250, as will be seen from the following summary:—

	Liberal.	Moderate.	Minimum.
General College Expenses	\$24 00	\$24 00	\$24 00
Charge for College Reading-rooms, Gymnasium, &c.	12 00	12 00	12 00
Board, 36 weeks, at \$3.00 to \$4.00	144 00	117 00	108 00
Rent of College-room, \$15 to \$90	90 00	36 00	15 00
Light and Fuel	18 00	15 00	12 00
Washing	25 00	16 00	9 00
Tuition	100 00	100 00	100 00
Books and stationery	37 00	20 00	15 00
	\$450 00	\$340 00	\$295 00
Deduct for Sons of Ministers <i>et al.</i> , in Classical Course . . . . .	. . . . .	. . . . .	100 00
			\$195 00
Deduct for same in other courses . . . .	. . . . .	. . . . .	\$50 00
			\$245 00
Lowest charges for neces- { Classical. . . . .	. . . . .	. . . . .	\$195 00
sary expenses { Technical . . . . .	. . . . .	. . . . .	245 00

Laboratory fees and damage assessment, which vary in amount, must also be added, while the personal expenses for clothing, &c., must be estimated according to individual experience. The first year will be made more expensive by the fees for registration and matriculation, and furnishings for room; \$300 will therefore be a small allowance.

Parents and guardians at a distance may deposit funds with some member of the Faculty, who will pay particular attention to the pecuniary concerns of the student, settling his bills, and transmitting an account of the expenditure, for which services he will charge a commission. It is strongly recommended that parents furnish their sons with little beyond what will meet their necessary expenses.

BEQUESTS AND DEVISES.

Each State has special statutory regulations in regard to wills, and it is most important that all testamentary papers be signed, witnessed, and executed in all other respects according to the laws of the State in which the testator resides. In all cases, however, the name of the corporation must be accurately given, as in the following forms:—

I give, devise, and bequeath to “The Trustees of Lafayette College,” in Easton, Pennsylvania, their successors and assigns forever, the sum of ———— dollars, to be invested by said corporation in good real estate security, and the interest accruing therefrom to be applied to the support of the Professors in said College.

I give, devise, and bequeath a certain lot, situated, &c., to “The Trustees of Lafayette College,” in Easton, Pennsylvania, and to their successors and assigns forever, for the uses and purposes of said College, according to the provisions of its charter.

PRIZES.

The following prizes are offered annually:—

THE FRANCIS A. MARCH PRIZE IN ENGLISH.

A prize of thirty dollars in books was given from 1862 to 1881 by the late Rev. William C. Fowler, LL. D., of Durham, Connecticut, and since 1881 has been continued by Henry A. Potter, M. S., Class of '77, of New York, under the title of “The Francis A. March Prize,” upon the following conditions:—

“A committee of at least three shall be chosen by the Faculty to determine which student of the Senior Class has made the greatest proficiency in English Philology.

"The decision of the committee is to be made after attending an examination in some English classic, conducted by the Professor of English, and after reading essays written by the several members of the class, which shall contain a discussion of the language of some English classic."

The subject in 1903 will be the works of William Cowper.

THE ASTRONOMICAL PRIZE.

A prize of thirty dollars in gold is awarded to the student making the greatest progress in the study of Astronomy in the Senior year.

MATHEMATICAL PRIZES.

Two prizes of the value of twenty dollars each are offered in the Department of Mathematics to those students of the Junior Class, one in the Classical and general courses of the Scientific Department, and one in the Technical Departments, who shall have exhibited during the first three years of the course the greatest proficiency in the study of Mathematics.

These prizes were founded, as was the astronomical prize above mentioned, in 1867, by Professor Traill Green, M. D., LL. D.

- THE LOUNSBURY PRIZE IN CHAUCER.

A prize, consisting of books, is given to that student of the Sophomore Class who shall present the best essay upon some one of the works of Chaucer. This prize was given in 1896 by Thomas R. Lounsbury, Professor of English at Yale University, and will be continued by friends of the College as the Lounsbury Prize in Chaucer.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE.

A prize consisting of books is given by the Early English Text Society, of London, to that student of the Junior Class who shall at the close of the Junior year pass the best examination in "English before Chaucer." The examination is based upon selected texts announced from year to year, which in 1903 will be "Anglo-Saxon Laws."

This prize was founded in 1871.

THE NEW SHAKSPERE SOCIETY'S PRIZE.

A prize of publications of the "New Shakspeare Society," of London, is awarded to that member of the Junior Class who passes the best general examination upon Shakespeare, his works, life, character, &c.

This prize was founded in 1875.

THE CLASS OF '83 PRIZE.

A prize of the value of fifteen dollars is annually awarded to that member of the Sophomore Class who shall have attained the highest standing in his division of the class in Trench on The Study of Words.

This prize was founded by the Class of 1883 at their graduation.

COLEMAN BIBLICAL PRIZES.

Three prizes, each of the value of twenty dollars, are awarded to those students of the Freshman Class who have attained the highest standing in the several divisions of Biblical study in that year.

These prizes were founded by the Rev. Lyman Coleman, D. D., in 1880.

PRIZES IN ORATORY.

The Washington and Franklin Literary Societies appropriate one hundred dollars a year for prizes in oratory. Four contestants are chosen from each Hall to take part in the Junior Oratorical Contest, which is held in May. In the presence of a public audience three Judges, approved by the Faculty, hear the speakers and award the prizes. Their decision is based on the merits of the performances as to originality and force, with reference both to composition and delivery. The first prize is fifty dollars, the second prize thirty dollars, and the third prize twenty dollars.

PRIZES IN DEBATE.

Three prizes, of the total value of one hundred dollars, are awarded to the successful competitors in a Senior contest in debate, held on Washington's Birthday in each year, between three con-

testants from each of the literary societies, chosen by a competitive debate in each society prior to December 1st in the previous year. The amount of the prizes and the conditions of the award are similar to the Junior oratorical contest. The first of these contests was held in 1894. The subject for debate in 1903 is:

“RESOLVED, *That it is a duty incumbent upon the National Government to more efficiently provide by legislation for the restriction and control of all combinations of capital, commonly known as Trusts.*”

CIVIL ENGINEERING PRIZE.

A prize of the value of fifty dollars, the gift of Carroll Phillips Bassett, C. E., Ph. D., of the Class of 1883, is annually awarded to that member of the graduating class who presents the best graduating thesis and attains the highest standard of scholarship in the Civil Engineering course.

THE PARK PRIZE IN LATIN.

A prize of fifteen dollars for the Latin Department has recently been founded by Mr. Samuel R. Park, A. M., '84. In 1903 it will be awarded, on the work of the second and third terms Freshman Class, for excellence in Horace.

HISTORICAL ESSAY PRIZE.

A prize, consisting of a copy of his work, “*The Marquis de Lafayette in the American Revolution,*” is given annually by Charlemagne Tower, Jr., LL. D., of Philadelphia, United States Minister to Germany, to that member of the Senior Class who shall, on or before the first day of October, present the best essay on some subject connected with the relations of *France and the United States*. The essays must not exceed three thousand words in length. The subject for the year 1903 is: “*The value of the French Alliance in the War for Independence.*”

THE CHEMICAL ESSAY PRIZES.

A prize of five dollars in books is awarded each term to that member of the Junior or Senior Class who shall present the best term theme on some Chemical subject.

THE GILBERT PRIZE IN OLD ENGLISH.

By the will of Howard Worcester Gilbert, who died in Chester County, March 5th, 1895, a bequest was left to the College, with the provision that a gold medal of the value of forty dollars should be awarded every two years to the student writing the best essay on the Old English Language and Literature, beginning with Beowulf, in the earliest Anglo-Saxon period, and extending down to the year 1070. Should the competitors be of equal merit, preference is to be given to residents of Pennsylvania.

The medal is an inch and three-fourths broad, three-sixteenths of an inch thick, and contains on its face a relief portrait of King Alfred, with the date 871-901, surmounted by the Anglo-Saxon phrase, "Næs he gold hwæte." The reverse shows a garland encircled with the legend, "Howard Worcester Gilbert Old English Prize. Founded 1895." Space is left for the name of the recipient.

This prize will be awarded at the Commencement of 1903. It is open to competition of students of Anglo-Saxon in the graduate courses of 1901-02 and 1902-03. The essay must be handed in by May 1st, 1903.

'85 PRIZE IN PHYSICS.

The Class of 1885 founded a prize in 1897 in the sum of \$500, the annual income of which is to be given to that member of the Junior Class who has attained the highest rank in the studies of Mechanics and Physics.

THE BLOOMBERGH PRIZE.

The Class of 1888 at its Decennial Reunion subscribed the sum of \$500, the annual income of which is to be awarded to that member of the Junior Class who shall attain the greatest proficiency in the study of the French and German languages and their literatures.

THE B. F. BARGE GOLD MEDAL.

A prize of a gold medal of the value of \$100 was founded by Benjamin F. Barge, Esq., of Mauch Chunk, Pa., whose death we regret to record as having occurred at Nanheim, Germany, on

October 30th, 1902. The prize is to be awarded to that member of the Senior Class who shall deliver the best oration in an annual contest to be held on Memorial Day, May 30th.

NOTE.—In all cases where a prize is awarded to an essay, the successful competitor must hand to the proper authority two typewritten copies of his essay before receiving the prize, if he is requested to do so.

RECENT ADDITIONS.

GIFTS TO THE DEPARTMENT OF MINING ENGINEERING AND GRAPHICS.—From Flory Manufacturing Company: Framed picture. From Superintendent Gilley, Brownsville: Cable grip. From United States Steel Company: Books. From C. L. Bryden, '02: Ore specimens. From American Bridge Company: Blue prints and books. From Mr. C. E. Warner, Easton: Large collection of ore specimens. From M. H. Francis, '91: Six mine maps. From J. E. Roderick: Mine inspector's reports.

THE DEPARTMENT OF PHYSICS has received valuable gifts from The General Electric Company, Lynn, Mass.; The Easton Power Company; Rev. W. H. Filson, '68, Easton; Mr. R. Albridge, Phillipsburg, N. J.; Dr. Edgar M. Green, '83, Easton.

THE CHEMICAL DEPARTMENT has received gifts from Dr. Stuart Croasdale, '88; Fred Lerch; George Lerch; R. R. Trezona; F. D. Moule; W. G. Swart; The New Jersey Zinc and Iron Company; The Highland Boy Smelter, Salt Lake City, Utah; Mr. B. C. Stannard; Dr. H. Reinbold; Ed. M. Davis; A. J. Underwood, '95; Charles Hart; Nat. Freeman; C. L. Bryden, '02; Dr. F. B. Peck; W. W. Johnston; The Larkin Soap Company; W. Walley Davis, '89; James Gayley, '76; The Baker & Adamson Chemical Company; The Lanyon Zinc Company; The Allis-Chalmers Company; J. C. Heckman, '99; Robert E. Divine, '99; Charles H. Larkin, '99; Albert H. Welles, '91; and O. O. Laudig, '92.

THE DEPARTMENT OF GEOLOGY.—Rev. Edwin McMinn, of Salem, N. J., has deposited with this department his extensive collection of minerals and fossils, numbering over two thousand valuable specimens.

The College has received the private collection of minerals, rocks, and fossils belonging to the late Samuel W. Barber, of St. Louis, of '40.

The collection of minerals gathered by James T. Doran, A. M., of '48, has been presented to the College by his widow.

In addition to the above, special mention should be made of the bequest to the College of the private collections of the late Traill Green, M. D., LL. D., whose connection with Lafayette College extended through the long period of sixty years, from 1837 to 1897, and by whose death the institution lost one of its staunchest and most eminent supporters. The collections consist of between three and four thousand specimens of rocks, minerals, and fossils, many of which are from foreign localities. His family have also given two hundred and fifty-eight volumes of scientific works.

DEGREES CONFERRED.

HONORARY DEGREES.

June 18th, 1902.

DOCTOR OF LAWS.—Hon. Franklin Murphy, Governor of New Jersey, Newark, N. J.

DOCTOR OF DIVINITY.—Rev. William H. Swift, Honesdale.

MASTER OF ARTS.—Hon. George McCurdy, Class of 1884, President of the Common Council of Philadelphia.

October 22d, 1902.

DOCTOR OF LAWS.—John W. Jordan, President of the Historical Society of Pennsylvania, Philadelphia.

DEGREES IN COURSE.

June 18th, 1902.

BACHELOR OF ARTS.—S. T. Achenbach, Pa.; J. H. Boal, Pa.; R. B. Cunningham, Pa.; B. H. Evans, Pa.; W. N. Hackett, Pa.; J. I. Kinsey, Jr., Pa.; H. J. Kuebler, Pa.; T. Morgan, Pa.; A. L. Myers, Pa.; J. A. Nesbitt, Md.; F. M. Painter, Pa.; J. R. Peale, Pa.; W. H. Peters, N. Y.; M. G. Readinger, Pa.; P. Richards, Pa.; J. R. Rude, Pa.; W. K. Seibert, Pa.; B. M. Sheppard, Pa.; F. S. Wright, N. J. Total, 19.

BACHELOR OF PHILOSOPHY.—R. A. Beers, Pa.; V. V. Currier, Pa.; W. J. Dietrich, Pa.; T. C. Fassitt, Pa.; H. S. Ficke, Pa.; J. P. Harley, Pa.; L. L. Iseman, Mo.; D. A. Kline, Pa.; F. P. McCluskey, Pa.; S. T. McCormick, Jr., Pa.; E. G. Mateer, Pa.; W. L. Meek, Pa.; K. C. Prichard, Ky.; R. M. Salmon, Pa.; R. B. Seem, Pa.; J. M. Shick, Pa.; W. H. Shindle, Pa.; J. O. Skinner, N. J.; J. R. Stockton, Pa.; W. H. Stroh, Pa.; O. F. Theis, Pa.; J. P. Warner, Pa. Total, 22.

BACHELOR OF SCIENCE.—J. A. Nevin, N. J.; C. V. Sloan, N. J. Total, 2.

BACHELOR OF SCIENCE (in Chemistry).—W. P. Fitzgerald, Pa.; A. F. Seem, Pa. Total, 2.

CIVIL ENGINEER.—Porter Allen, Pa.; W. W. Bryan, N. J.; J. W. Mengel, Md.; O. F. Sieder, N. J. Total, 4.

MINING ENGINEER.—C. L. Bryden, Pa. Total, 1.

ELECTRICAL ENGINEER.—G. E. Feters, Pa.; W. R. McCommon, Pa. Total, 2.

MASTER OF ARTS.—T. R. Guy, '98; W. S. McLean, Jr., '98; L. C. Bixler, '99; R. W. Chamberlain, '99; F. E. Geiser, '99; J. S. Grim, '99; R. P. McCready, '99; G. B. Porter, '99; E. W. Romberger, '99; 'A. P. Reid, '99; A. Seip, '99; C. M. Shively, '99; F. W. Stonecipher, '99; J. F. Valieant, '99; A. B. Wallize, '99. Total, 15.

MASTER OF SCIENCE.—W. S. Miller, '94; C. M. Best, '99; G. W. Hagney, '99; B. Hand, '99; J. C. Heckman, '99; A. E. Lebo, '99; W. H. Losch, '99; R. B. Mateer, '99; J. W. Paff, '99; W. H. Parsons, '99; W. M. Piatt, Jr., '99; A. Roberts, '99. Total, 12.

DOCTOR OF PHILOSOPHY.—Erwin Levi Whatenecht, A. M., Class of 1895, Professor of Latin and Greek, Miami University, Ohio. (October 22d, 1902.)

Total—First Degree, 52; Master's Degree, 28.

COMMENCEMENT DISTINCTIONS, 1902.

HONORS.—Herman Styles Ficke, Dubuque, Iowa, Latin Salutatory; Thomas Morgan, Wilkesbarre, Valedictory; Otto Frederick Theiss, Germania, Philosophical Oration.

SPECIAL ORATIONS.—Frederick Starr Wright, Barnegat, N. J., Historical.

ORATIONS.—S. T. Achenbach, Nazareth; R. B. Cunningham, Fairfield; G. E. Feters, Malvern; D. A. Kline, Liverpool; H. J. Kuebler, Easton; W. R. McCommon, Oxford; J. R. Peale, New Bloomfield; M. G. Readinger, Dryville; P. Richards, Pittston; J. R. Rude, White's Valley; W. K. Seibert, Worcester; B. M. Shepard, Easton; O. F. Sieder, Newark, N. J.; J. O. Skinner, Phillipsburg, N. J.; C. V. Sloan, Phillipsburg, N. J.; J. R. Stockton, Pittsburgh. Total, 20.

PRIZES AWARDED.

SENIOR PRIZEMEN.

THE FRANCIS A. MARCH PHILOLOGICAL PRIZE: Thomas Morgan, Wilkesbarre.

THE ASTRONOMICAL PRIZE: James Rea Stockton, Allegheny.

THE BASSETT PRIZE IN CIVIL ENGINEERING: Not awarded.

CHARLEMAGNE TOWER PRIZE IN FRENCH HISTORY: E. R. Hughes, Scranton.

SENIOR DEBATE: February 28th, 1902.

FIRST PRIZE: Parke Richards, Pittston.

SECOND PRIZE: J. A. Nesbitt, Colora, Md.

THIRD PRIZE: D. A. Kline, Liverpool.

HONORABLE MENTION: F. S. Wright, Barnegat, N. J.

B. F. BARGE ORATORICAL PRIZE: Gold Medal, \$100, Thomas Morgan, Wilkesbarre.

CHEMICAL PRIZE:

PRIZE SCHOLARSHIP IN MEDICO-CHIRURGICAL COLLEGE: W. K. Seibert, Worcester.

JUNIOR PRIZEMEN.

THE MATHEMATICAL PRIZES:—

CLASSICAL DEPARTMENT: Carl F. Pfatteicher, Easton.

TECHNICAL DEPARTMENT: F. B. Cunningham, Indiana.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE (London): Not awarded.

THE "NEW SHAKSPERE SOCIETY'S PRIZE": Robert Blythe Cunningham, Fairfield, 1901; and E. W. Greiner, Benzette, 1902.

JUNIOR ORATORICAL PRIZES, Contest May 19th, 1902.

SPEAKERS.

Washington Hall:

H. H. BENDER,

THOMAS BURNS,

E. D. PHILLIPS,

D. E. STECKEL,

Franklin Hall:

H. R. GOLD,

E. W. GREINER,

O. A. GREINER,

C. F. PFATTEICHER.

FIRST PRIZE: Fifty dollars, Thomas Burns, Wilkesbarre.

SECOND PRIZE: Thirty dollars, Otto A. Greiner, Benzette.

THIRD PRIZE: Twenty dollars, Daniel E. Steckel, Easton.

HONORABLE MENTION: E. W. Greiner.

THE CLASS OF '85 PRIZE IN PHYSICS: J. M. Shelly, Bally.

JUNIOR CHEMICAL PRIZES (for the best Term Theme):

FIRST TERM: W. L. Jacobus, Newark. N. J.

SECOND TERM: W. P. Fitzgerald, Wilkesbarre.

THIRD TERM: W. J. Welsh, Jr., Scranton.

THE BLOOMBERGH PRIZE: Carl F. Pfatteicher, Easton.

SOPHOMORE PRIZEMEN.

THE LOUNSBURY PRIZE IN CHAUCER: R. J. Snyder, Lehighton.

CLASS OF '83 ENGLISH PRIZE: Classical, E. R. Lavers, Easton; Technical, Richard N. Hart, Easton.

FRESHMAN PRIZEMEN.

LYMAN COLEMAN BIBLICAL PRIZES.

SECTION A.: E. P. Case, Patchogue, N. Y.

SECTION B.: W. H. Kirkpatrick, Easton.

SECTION C.: D. W. Phillips, Scranton.

THE PARK PRIZE IN LATIN: W. H. Kirkpatrick, Easton.

ORATORICAL PRIZES, *Washington Hall*: First, G. H. Fickes, Mount Rock; second, D. E. Latham, Weatherly. *Franklin Hall*: First, W. V. Berg, Ellenville, N. Y.; second, H. C. Edgar, Easton.

CLASS MONITORS.

Appointed for general Excellence in study:—

SENIOR CLASS: E. W. Greiner.

JUNIOR CLASS: C. H. Canning.

SOPHOMORE CLASS: J. L. Jones.

FRESHMAN CLASS: F. E. Stockton.

Theses Presented by Candidates for Degrees in the Technical Courses of the Pardee Scientific Department.

JUNE 18th, 1902.

1. A Review of the Chlorates.

ALFRED FREDERICK SEEM, Bangor.

2. A Dilution Table for Acids.

WILLIAM PRESTON FITZGERALD, Wilkesbarre.

3. Study of a Hydraulic Ram.

OTTO FERDINAND SIEDER, Newark, N. J.

WILLIAM WHITELEY BRYAN, Phillipsburg, N. J.

4. Strength of Beams with Notched Ends.
PORTER ALLEN, Williamsport.
5. Geology of Copper Ore.
JOHN WILLIAM MENGEL, Baltimore, Md.
6. The Ingersoll-Sergeant Machine Rock Drill.
CHARLES LAZARUS BRYDEN, Pittston.
7. Review and Efficiency Test of the Power Plant of the Easton
and Nazareth Electric Railway Company.
GEORGE ELWOOD FETTERS, Chester Valley.
WILLIAM ROSS McCOMMON, Oxford.

THE ALUMNI ASSOCIATION.

The *Alumni Association* is composed of Graduates of the College and such former students as left College before graduation, in good standing, as may be elected. The annual meeting is held on Tuesday preceding Commencement Day.

The Association has the privilege of choosing six members of the Board of Trustees, who hold office for six years. In June, 1902, David Bennett King, Esq., of New York City, '71, and Nathan Grier Moore, Esq., Chicago, '73, were chosen. In the spring of 1904 two more will be voted for.

The executive committee is as follows: McCluney Radcliffe, M. D., '77, Chairman, Philadelphia; F. R. Drake, '86, Easton; James W. Fox, '88, Easton; H. A. Foresman, '87, Chicago; and David B. Simpson, '86, New York City.

An oration was delivered before the Association on June 17th by James Whitfield Wood, A. M., of Easton, '66, upon "The Life and Services of Prof. James Henry Coffin, LL. D.," after which a memorial tablet, the gift of the Class of 1866, was unveiled by the grandchildren of the late Professor.

It is desirable to keep up the full record, so long maintained, of the residences, occupations, literary efforts, and public services of the alumni and former students of the College.

Information is solicited in regard to these points, and also in reference to matters appropriate to the obituary record, which is annually prepared for the Alumni Association.

ALUMNI ASSOCIATION OF LAFAYETTE.

WM. L. SHEAFER, '78, Pottsville *President.*
 HON. HORACE P. GLOVER, '71, Mifflinburg *Vice-President.*
 PROF. SELDEN J. COFFIN, '58, Easton *Secretary and Treasurer.*

LOCAL ASSOCIATIONS.

THE LAFAYETTE ALUMNI ASSOCIATION OF PHILADELPHIA AND VICINITY.

REV. CHARLES E. BURNS, D. D., '73, Manayunk *President.*
 CHAS. B. ADAMSON, '77, 730 Market Street *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
NEW YORK AND VICINITY.

HON. GEORGE C. AUSTIN, '85, 192 Broadway, New York . *President.*

LEWIS H. ALLEN, '94, 35 Nassau Street, New York. . . . *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
NORTHEASTERN PENNSYLVANIA.

ISRAEL PLATT PARDEE, C. E., '74, Hazleton *President.*

RAY W. FULLER, E. E., '99, Scranton *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
THE WEST BRANCH.

FRED H. PAYNE, '88, Williamsport *President.*

R. FLEMING ALLEN, '90, Williamsport *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
CENTRAL PENNSYLVANIA.

REV. D. K. FREEMAN, D. D., '56, Huntingdon *President.*

REV. A. N. HAGERTY, '81, Carlisle *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
WESTERN PENNSYLVANIA.

REV. E. J. KNOX, D. D., '77, Allegheny *President.*

EDWARD C. CHALFANT, '95, 402 Grant Street, Pittsburgh . *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION
OF MARYLAND.

ROBERT H. SMITH, '67, 53 St. Paul Street, Baltimore . . *President.*

PEARCE KINTZING, M. D., '81, Baltimore *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
CHICAGO AND VICINITY.

WILLIAM A. DOUGLASS, '72, Chicago *President.*

LESLIE F. GATES, '97, 203 Michigan Boulevard, Chicago . *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
THE NORTHWEST.

HON. ALEXANDER RAMSEY, '36, St. Paul, Minn. *President.*

HON. JAMES T. HALE, '77, Duluth, Minn. *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
WASHINGTON, D. C.

JAMES F. R. APPLEBY, M. D., '64, Georgetown *President.*

SNOWDEN ASHFORD, '88, 918 Farragut Square *Secretary.*

STUDENTS.

GRADUATE STUDENTS.

C. L. Bryden, E. M., Pa.	Mining and Chemistry,		
		Lafayette,	'02.
James H. Closson, M. D., Pa.	Biology		
G. E. Fetters, E. E., Pa.	Mining	"	'02.
J. D. Geist, A. M., Pa.	Latin and German	"	'97.
S. B. Gilhuly, A. M., N. J.	History and English Literature,		
		Lafayette,	'86.
J. B. Hench, A. M., Pa.	Latin	"	'83.
John L. March, A. M., N. Y.	Philology and Ger-		
	manic Languages,	"	'93.
E. G. Mateer, Ph. B., Pa.	Chemistry	"	'02
H. C. Mohn, A. M., Pa.	Philosophy and Pedagogy,	"	'95.
H. H. Reichard, A. B., Pa.	French and German,	"	'01.
E. F. Reimer, A. M., Pa.	Philology	"	'97.
A. C. Sawtelle, A. B., Pa.	History	"	'00.
J. H. Sigman, Ph. B., Pa.	Chemistry	"	'95.
G. W. Twitmyer, A. M., Del.	Philosophy and Pedagogy,		
		Franklin and Marshall,	'84.

GRADUATES 14

SENIOR CLASS, 1903.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Arthur Shinkle Baker . . .	C. . . .	New Haven, Conn . .	86 N.
George Bell	C. E. .	Marysville	79 N.
Harold Herman Bender . .	C. . . .	Martinsburg, W. Va.,	133 McK.
Clinton Artinias Bergstresser,	C. . . .	South Bethlehem . .	83 N.
David Robert Brown . . .	E. M. .	Springfield, So. Dak. .	77 K.
Thomas Burns	C. . . .	Moosic	B. H.
Walter David Bushnell . .	L. . . .	Harrisburg	128 M.
Herbert Cole	C. . . .	Stone Church	23 S.
George Copeland	C. . . .	Philadelphia	169 E.
Frank Brockett Cunnings-			
ham	C. E. .	Indiana	D. K. E.
William Sheridan Dawson .	C. . . .	Glendon	Home.
Franklin Kaercher Day . .	C. E. .	Hazleton	105 McK.
Earl Ernst	L. . . .	Denison, Texas .	124 Cattell.
Fred Falkner †	C. E. .	Wyoming, N. Y. . . .	66 B.
Edmund Foltz Ferer . . .	E. M. .	Riegelsville	147 P.
Ralph Manasses Fraunfelter,	L. . . .	Easton .	220 McCartney St.
Augustus Henry Fretz . . .	L. . . .	Doylestown	146 P.
Charles Fred Fleming Garis,	L. . . .	Easton	207 Ferry St.
Jesse Godfrey	C. . . .	Stewartsville, N. J. . .	
Howard Reuben Gold . . .	C. . . .	Nazareth	62 B.
Harry Gordon	C. E. .	Boonton, N. J.	56 S.
Lynn James Green † . . .	C. E. .	Utica, N. Y.	117 McK.
Ernst Wilhelm Greiner . .	L. . . .	Benezette	174 E.
Otto Albert Greiner	L. . . .	Benezette	174 E.
Clyde Graeme Guthrie . . .	C. . . .	Indiana	D. K. E.
Edward Clayton Haldeman, †	C. E. .	Philadelphia	82 N.
Walter Stanley Haldeman †	C. E. .	Philadelphia	82 N.
Charles Henry Hartge . . .	L. . . .	Glen Savage	24 S.
Albert Long Hill †	C. E. .	Scottdale	100 McK.
Robert Botsford Hitchcock .	Ch. . .	Scranton	165 E.
Harry Edgar Hoffman . . .	C. . . .	Annandale, N. J. . . .	163 E.
John Canfield Howe	Ch. . .	Passaic, N. J.	87 N.
William Lester Jacobus . .	Ch. . .	Newark, N. J.	85 N.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Chester Arthur King . . .	C . . .	Phillipsburg, N. J. . .	436 S. Main St.
Benjamin Aumiller Kline . . .	L . . .	Liverpool	25 S.
Harry Hubbard Larkin † . . .	Ch. . .	Buffalo, N. Y.	131 M.
Herbert Franklin Laub . . .	C . . .	Nazareth	116 McK.
Raymond Lerch	C . . .	Phillipsburg, N. J. . .	67 Harris St.
Ellwood Hunter McClelland, L. . . .	L . . .	Rockdale Mills	130 M.
Michael Edward Maloney	C . . .	Phillipsburg, N. J. . .	38 Wilson St.
Frank Launtz Miller †	L . . .	Bakersville	80 N.
Jesse Houser Miller †	L . . .	Southwest	139 F.
Joshua Lewis Miner	C . . .	Wilkesbarre	114 McK.
David Hubbell More	L . . .	Bangor	101 McK.
Charles Howard Ortt	C . . .	Pennsburg	35 S.
Chauncey Hulbert Peacock †	L . . .	Philadelphia	110 McK.
Carl Frederic Pfatteicher	C . . .	Easton	49 S. 5th St.
Edward David Phillips	L . . .	Peely	64 B.
William Agnew Pollock	E. M. . . .	Allentown	138 F.
Budd Jameson Reaser †	C . . .	Phillipsburg, N. J. . .	149 Mercer St.
Henry Carl Richter †	L . . .	Dubuque, Iowa	D. K. E.
William Howard Rush †	G. S. . . .	Pittsburgh	132 M.
James Monroe Shelley	C . . .	Bally	35 S.
Frank Cline Shipman	C . . .	Phillipsburg, N. J. . . .	14 Bennett St.
John Charles Skuse †	E. M. . . .	Duluth, Minn.	77 K.
Louis Wolle Smith †	C . . .	Phillipsburg, N. J. . . .	40 Fayette St.
William Mackay Smith	L . . .	Chambersburg	133 M.
Martin Clay Stayer	C . . .	Altoona	75 K.
Daniel Edwin Steckel	C . . .	Easton	48 Centre Sq.
Joseph Frederick Steele	L . . .	Easton	700 Paxinosa Ave.
Merrill Peter Steele	C . . .	Goff	164 E.
Warren Stoutnour	C. E. . . .	Everett	12 S.
John Prince Treadwell, Jr., †	G. S. . . .	Norwalk, Conn.	119 McK.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Harry Edgar Trout	C. E.	Lykens	92 McK.
George Emanuel Twitmyer, L. . . .		Wilmington, Del.	102 McK.
Joseph Clyde Twitmyer	Ch. . . .	Wilmington, Del.	102 McK.
Stewart Mann Uhler	C. . . .	Stockertown	
Alfred Abraham Walter	C. . . .	Wilkesbarre	70 B.
William John Weish, Jr. †	Ch. . . .	Scranton	76 K.
Wilbur Emerson Winder †	C. E.	Williamsport	72 B.
William Aaron Yeisley	C. . . .	Easton	168 E.
SENIORS			71

JUNIOR CLASS, 1904.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Louis Anderson, Jr. . . .	Ch. . . .	Bloomsbury, N. J. . . .	38 S.
Harry Daniel Bailey . . .	C. . . .	Easton . . . 536 Berwick St.	
Edward Harold Barnes . . .	C. . . .	Perth Amboy, N. J. . . .	21 S.
Charles Glen Beadenkopf, .	Ch. . . .	Wilmington, Del. . . .	140 F.
Fred Adam Blaicher . . .	Ch. . . .	Newark, N. J. . . .	131 McC.
Charles Lewis Bolton † . . .	C. E. . . .	Philadelphia	63 B.
Charles Hewson Canning . .	C. . . .	West Chester	D. K. E.
Russell Kennedy Carpenter†	C. E. . . .	Easton	412 Parsons St.
George Miller Castles . . .	E. E. . . .	Phillipsburg, N. J. . . .	
			177 Chambers St.
Robert Ray Chamberlin . . .	C. . . .	Palmerton	12 S.
Thomas McKeen Chidsey † .	C. . . .	Easton	Paxinosa Ave.
Howard Albert Clark . . .	C. . . .	Bridgeton, N. J. . . .	84 N.
Eugene Richard Coleman † .	C. . . .	Hackettstown, N. J. . . .	—
John Earl Coolidge	C. . . .	Scranton	123 McC.
James Henry DeLong . . .	Ch. . . .	Hancock	19 S.
Frederick Knecht Detwiller†	L. . . .	Easton	52 Centre Sq.
Earl Ralph Dooley	C. . . .	Hancock, N. Y.	22 S.
Edward Eugene Dreisbach .	C. . . .	Easton	219 High St.
William Malcolm Duncan .	C. . . .	High Spire	49 McC.
John Abraham Ernst † . . .	C. E. . . .	Llewellyn	40 Cattell St.
Arthur Samuel Fox	C. . . .	Easton	
			17th and Lehigh Sts.
Frank Asa Frear	L. . . .	Lake Winola	34 S.
Raymond Moore Freed . . .	C. . . .	Perkasie	37 S.
James Richard Frow † . . .	C. . . .	Lewistown	75 K.
Thomas Omar Gilland † . . .	C. E. . . .	Shamokin	D. K. E.
Edwin Hulick Glanz † . . .	C. E. . . .	Easton	145 Bushkill St.
Richardson Hand	C. E. . . .	Wilkesbarre	107 McC.
Richard Newell Hart . . .	Ch. . . .	Easton	Prof. Hart's.
Thorndyke Harvey †	C. . . .	West Chester	D. K. E.
David Arthur Hatch	E. M. . . .	Easton	901 Wilkesbarre St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
George Cornelius Hill . . .	C. . . .	Mahopac, N.Y. . . .	38 S.
Clinton Thielens Hilliard . .	E. E. . .	Easton	214 N. 3d St.
John Hodgson	C. . . .	Avoca	167 E.
John Estell Iszard	L. . . .	May's Landing, N. J. . .	152 P.
Joseph Paul Jennings	C. E. . .	Forest City	68 B.
Walter Johnston †	C. E. . .	Philadelphia	138 F.
William Wallace Johnston . . .	C. . . .	Shields	122 McK.
Joseph James Kehler, Jr. . . .	C. . . .	Frackville	118 McK.
Wm. Carpenter Kennedy,	L. . . .	Bloomsbury, N. J. . . .	Home.
William Miles Kieffer	C. . . .	Milton	149 P.
Forrest Jacob Kleinhans	C. . . .	Easton, . . Philadelphia St.	
Harrison Edward Knauss	L. . . .	Easton	815 Ferry St.
Alfred Theodore Koehler	E. E. . .	Easton	42 S. Green St.
Olin York Kyte	L. . . .	Pittston	108 McK.
Fred Launt †	L. . . .	Walton, N. Y.	91 McK.
Earl Roy Lavers	C. . . .	Easton	324 Cattell St.
Theron Lee	C. . . .	Carbondale	169 E.
James Norris McDowell	C. . . .	Principio, Md.	30 S.
Joseph McEwen Marquis †	C. E. . .	Chester, S. C.	169 E.
Charles McCord Means	C. . . .	Shippensburg	65 B.
Howard Milton Merritt	L. . . .	Winburne	46 S.
Hugh McNair Miller	Ch. . . .	Harmony, N. J.	108 McK.
Henry Miller Morey	C. . . .	San Antonio, Texas	89 N.
William George Morgan	Cl. . . .	Bristol, England	
			431 Clinton St.
Clarence Floyd Nagle	E. E. . .	York	68 B.
Lloyd Dutt Ott	C. E. . .	Easton	230 McCartney St.
John Frederick Parsons	L. . . .	Media	32 S.
George Edwin Post	E. E. . .	Phillipsburg, N. J.	
			310 Chambers St.
Frank Howard Raub †	C. E. . .	Easton	719 Cattell St.
Emanuel Theodore Rehrig	C. . . .	Easton	107 Madison St.
Stacy Lippincott Roberts	C. . . .	Williamsport	90 N.
James Andrew Root	C. . . .	Easton	19 S.
Charles Turner Sands †	Ch. . . .	Philadelphia	—
Thomas Marshall Scott †	E. M. . .	Pittsburgh	—

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Frank Wilson Sebring . . .	C. . . .	Jersey Shore	30 S.
Lewis Llewellyn Segur † . .	C. E. . .	Patterson, N. Y. . . .	130 McC.
Franklin William Shaw . . .	L. . . .	Patchogue, N. Y. . . .	85 N.
Joseph Wilson Smith † . . .	C. E. . .	Hazleton	105 McK.
Roy Frank Snyder	C. . . .	Easton	932 Wash'n St.
Raymond John Snyder † . . .	L. . . .	Lehighton	—
Thomas Franklin Soles . . .	L. . . .	McKeesport	99 McK.
Rodney Long Stewart † . . .	C. E. . .	Easton	Canal St.
J. A. Garfield Stitzer . . .	C. . . .	Schuylkill	106 McK.
David Styer	C. E. . .	Burlington, N. J. . . .	88 N.
Leroy Dey Swingle	L. . . .	Dunmore	24 S.
Henry August Theis	L. . . .	Germania	134 M.
James Arthur Van Atta . . .	C. . . .	Hackettstown, N. J. . . .	58 S.
John Oberley Vanatta † . . .	L. . . .	Brainerds, N. J., 100 Cattell St.	
Charles Joseph Walker . . .	E. E. . .	Mayfield	134 M.
Henry Heil Werner	Ch. . . .	Bangor	170 E.
John Edward Werner	C. E. . .	Bangor	172 E.
Raymond Geiser Whitesell, C. . . .	C. . . .	Easton	700 Walnut St.
Floyd Grant Wilcox	E. M. . .	Bangor	171 E.
James Homer Wilson	L. . . .	Cumberland, Md. . . .	145 P.
Albert Negley Wolff	C. . . .	Welsh Run	21 S.
Leroy Senour Wolff	C. . . .	Congruity	164 E.
Arthur Heath Woodworth . C. . . .	C. . . .	Sayre	81 N.

JUNIORS 87

SOPHOMORE CLASS, 1905.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
John Griffith Atwood . . .	C. . . .	Albany, N. Y., 197 Chambers, Ph'bg.	
John Nathan Bechtel . . .	L. . . .	Bally	36 S.
William Vanderveer Berg .	C. . . .	Ellenville, N. Y. . .	S. 4th.
Robert Patrick Blewitt † . .	E. M. . .	Mexico, Mexico . . .	97 McK.
Robert Whitfield Bowlby .	C. . . .	Easton	13th and Ferry.
Ralph Johnson Boyd . . .	C. . . .	Hensel	27 S.
Leonard Gansevoort Brad- ley †	E. M. . . .	Duluth, Minn.	73 K.
Albert Brown	E. E. . . .	Hazleton	69 B.
Harold Atwood Brown † . .	E. E. . . .	Glen Ridge, N. J. . .	135 F.
Robert Brown, Jr.	C. . . .	Stroudsburg	44 S.
Edward Irvin Campbell . .	C. . . .	Easton	405 Burke St.
John Earl Carpenter . . .	E. M. . . .	Phillipsburg, N. J. . .	151 Washington St.
Edward Percy Case	L. . . .	Patchogue, N. Y. . . .	48 S.
Frank Campfield Case . . .	C. . . .	Phillipsburg, N. J. . .	165 N. Main St.
Mortimer David Case † . .	L. . . .	Patchogue, N. Y. . . .	48 S.
Edwin Dubois Chase . . .	Ch. . . .	Easton	1042 Northampton St.
William Hamlin Cline . . .	E. E. . . .	Phillipsburg, N. J. . . .	96 Bennett St.
Elton Hector Closs † . . .	L. . . .	Rose, N. Y.	79 N.
Nathan Stiger Conover . .	C. . . .	Clinton, N. J.	26 S.
Joseph Royer Conrad . . .	C. . . .	Greencastle	25 S.
Paul Darwin Cook	E. M. . . .	Merryall	173 E.
Welling Thomas Cook . . .	C. . . .	Merryall	173 E.
John Horn Cooper	C. E. . . .	Easton	200 Burke St.
John McGill Cooper	E. E. . . .	West Philadelphia. . . .	122 McK.
Charles Matthew Coxe . . .	L. . . .	Wilkesbarre	51 S.
John Paul Cranston	C. E. . . .	Newport, Del.	140 F.
William Sloan Creveling .	Ch. . . .	Bloomsbury, N. J. . . .	49 S.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Edwin Howard Dalrymple,	C. E.	Easton	26 N. 2d St.
William Oswill Dennis † . .	C. E.	Nazareth	116 McK.
Walter Wallace Drew † . .	C. E.	McKeesport	101 McK.
Henry Copp Edgar	C.	Easton	143 Bushkill.
John Theodore English . .	L.	Elizabeth	64 B.
Thomas Franklin Eynon . .	E. E.	Scranton	69 B.
John Frederick Farquhar . .	E. E.	Bethlehem	
		36 Centre St.,	B'm.
Edward Franklin Farquhar, C. . . .		Bethlehem	
		36 Centre St.,	B'm.
Thomas Edward Fatzinger †, C. E. . .		Weaversville	113 McK.
Roy Tresler Fennell	E. E.	Altoona	—
George Herman Fickes	L.	Mt. Rock	27 S.
Nathaniel Guiley Finch	E. M.	Allentown	413 Centre St.
John Jones Fosselman	L.	Donally Mills	42 S.
Robert Thomas Fox	L.	Downingtown	74 K.
James McDowell Gilland	C. E.	Shamokin	D. K. E.
Henry B. Greensted	Ch.	Scranton	67 B.
Walter Bohrer Guy †	L.	Washington, D. C.	148 P.
Frederick Zeller Hartzell	C.	Lebanon	60 S.
Lester Cleveland Hawk	L.	Bloomsbury, N. J.	Home.
Horace Rogan Hoffman	C.	Olney	44 S.
Clarence Ricker Hopper †	Ch.	Newark, N. J.	127 M.
Winford Bishop Hornbaker † Ch.		Scranton	—
George Howarth	L.	Wilkesbarre	72 Blair.
Ross Strominger Hubley †	C. E.	Harrisburg	128 M.
Thomas D. Irwin †	L.	Huntingdon	151 P.
John Lewis Jones	L.	Bangor	39 S.
Wallace Montgomery Keely, C.		East Greenville	130 M.
William Neely Keith	C.	Newtown	90 N.
Christian Arthur Schultz			
Kemper	C.	Easton	225 N. 10th.
Charles Brearley Kennedy, E. E.		Trenton, N. J.	78 K.
John Henry Kinter	L.	Chambersburg	67 B.
William Huntington Kirk-			
patrick	C.	Easton	2 Reeder St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Frederich Gaston Kolb . . .	C . . .	San Paulo, Brazil, Clinton Pl.	
Rudolf Heinrich Kudlich, . .	E. E. .	Drifton	129 M.
Otis Floyd Lamson † . . .	L . . .	Victor, Col.	91 McK.
Albert Moore Lane † . . .	C . . .	Duncannon	42 S.
Dudley Eugene Latham . . .	L . . .	Weatherly	142 P.
Morris Robert Henry Levin †	E. E. .	Beverly, N. J. . . .	114 McK.
Tracy Day Luccock	C . . .	Washington, D. C. . .	148 P.
J. Walter McIlhaney	E. M. .	Easton	69 N. 2d St.
Henry McKeen, Jr.	C . . .	Easton	1254 Butler St.
Joseph Pomeroy Maclay † .	C . . .	Chambersburg	118 McK.
Robert Kline Melick † . . .	C. E. .	Phillipsburg, N. J. . . .	257 Mercer St.
Owen Luther Mench † . . .	E. E. .	Jersey Shore	83 N.
George Egbert Mensch . . .	E. E. .	Mifflinburg	43 S.
Clyde Kennedy Miller . . .	L . . .	Harmony, N. J.	110 Bullman St.
John Knauss Montgomery . .	Ch. . .	Hazleton	43 S.
Oscar Louis Morgenstern . .	C. E. .	Easton	826 Northampton.
Joseph Morrison †	Ch. . .	Easton	614 Ferry.
Edward Guy Nellis	C . . .	Geneva, N. Y.	206 McC.
James Lawson Nesbitt . . .	C . . .	Colora, Md.	161 E.
Samuel Williamson Nevin . .	Ch. . .	Easton	720 Paxinosa Ave.
Harvey Bentley Parsons . .	L . . .	Media	58 S.
Walter Winfield Peacock . .	E. M. .	Mt. Airy	137 F.
Walter Leon Peake	L . . .	Wellsboro	228 McC.
David Wendell Phillips . . .	C . . .	Scranton	94 McK.
Darwin Crawford Pomeroy . .	E. E. .	Port Royal	92 McK.
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Douglass Wyman Reeder † .	L . . .	Easton	59 N. 3d St.
Harry Reese	E. E. .	Wilkesbarre	15 S.
Ray James Garfield Ritter . .	E. E. .	Allentown	62 B.
Warren Adams Roe	L . . .	Newark, N. J.	D. K. E.
Edward Irving Rogers † . . .	E. E. .	Washington, N. J. . .	131 McC.
Frank Hannam Ronk † . . .	Ch. . .	West Chester	150 P.
Carmon Ross	L . . .	Pen Argyl	43 S.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Leigh Harley Rouzer, Jr., †	E. M.	City of Mexico . . .	75 K.
Harry Herbert Ruef . . .	Ch.	Poughkeepsie, N. Y. .	132 M.
Matthew Johnston Scammell	Ch.	Trenton, N. J., 131 S. Main St.	
Wm. Thomas Schillcutt, B.S., †	Ch.	Nashville, Tenn., 711 Pine St. (Howard University, 1897.)	
William John Schwartz . .	E. E.	Hazleton	129 M.
Ralph English Seaman †	Ch.	Perth Amboy, N. J., .	74 K.
Howard Anders Seipt . . .	C.	Worcester	60 S.
Jehiel Edward Shewell . .	C.	Phillipsburg, N. J., 285 Mercer.	
William Grant Showman . .	L.	Mt. Pleasant . 305 Cattell St.	
George Allan Sigman . . .	L.	West Chester . . .	115 McK.
James Sigman	L.	West Chester . . .	115 McK.
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Ambrose L. Spencer, Jr. †	L.	Scranton	121 McK.
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Franklin Clark Thompson .	L.	Washington, N. J., 344 McC.	
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George Alfred Walter . . .	Ch.	Scranton	71 B.
Howard Paul Wanner . . .	E. M.	Kutztown . . 305 Cattell St.	
Lee Spangler White † . . .	E. M.	Braddock	80 N.
Joseph Burton Wiley . . .	C.	Colora, Md.	161 E.
Hiram Williams †	C. E.	Bangor	162 E.
Philip Francis Williams . .	L.	Martin's Ferry, Ohio .	26 S.
John Hunt Wilson	Ch.	Easton	531 Cattell St.
Leo Earl Wilt	C. E.	Towanda	15 S.
Harlan Edgar Woehrle . . .	E. E.	Easton	642 Walnut St.
Andrew Addison Wren † . .	E. M.	Trenton, N. J. . 40 Cattell St.	
Herbert Conrad Yahraes . .	C.	Easton	24 Noll's Court.
Harley Paul Yeisley	L.	Nazareth	Home.
Henry Sherwood Young † .	L.	Easton . 607 Paxinosa Ave.	

SOPHOMORES 127

FRESHMAN CLASS, 1906.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
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Eugene Anders Anders	L. S.	Norristown . .	405 Burke St.
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Ernest Arthur Aston	Ch.	Wilkesbarre	175 E.
Chester Reese Atkinson	E. M.	Rising Sun, Md.	176 E.
Reuben L. Babcock, Jr.	C.	Absecon, N. J.	98 McK.
Bertram Rodenbough Bach- man	Ch.	Phillipsburg, N. J., 97 N. Main St.	
Roy William Baker	L. . . .	Ogden, Utah	146 P.
William Strader Barcalow	E. E.	Easton	329 Bushkill St.
Oscar Ogilvie Barr	L. . . .	Pine Grove	405 Burke St.
Raymond Grey Barr	E. E.	Pittsburgh	127 M.
Roscoe Clifford Barstler . .	C. . . .	Philadelphia,	88 N.
Oswald Lewis Bender	C. E.	Martinsburg, W. Va., Prof. Hall's.	
Herman Ario Briggs	C. . . .	Nescopeck	31 S.
Edward Ingersoll Brown	L. . . .	Boonton, N. J.	49 S.
Joseph Thomas Caldwell	G. S.	Liberty Grove, Md.	88 N.
John Wright Caswell	E. M.	Lime Hill	36 S.
John Gardner Clemson† . . .	E. E.	Pittsburgh	509 High St.
Ralph Ernest Clemson† . . .	L. . . .	Pittsburgh	509 High St.
Oscar Earl Cole	C. . . .	Phillipsburg, N. J., 109 Hudson St.	
Ernest Lynn Coolidge	E. M.	Scranton	129 McC.
Paul Raymond Correll	G. S.	Easton	75 N. 4th St.
Herbert Taite Darlington	E. E.	West Chester	150 P.
James Algernon Darsie	C. E.	Pittsburgh	135 F.
Russell Dunbar Dietrich	C. E.	Easton	411 High St.
Francis Shunk Downs	L. . . .	Dover, Del.	D. K. E.
Harry Joseph Duane	C. E.	Point Pleasant, N. J.,	228 McC.
Walter Claude Dutot	C. . . .	Stroudsburg	49 McC.
Walter Bream Edmundson, L.	. . . .	Pittsburgh	223 McC.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Francis Armin English . . .	L. . . .	Elizabeth, N. J. . . .	131 McC.
Warren Harold Fee † . . .	L. . . .	Bombay, India	137 F.
Henry A. Picking Fischer . . .	C. . . .	Easton	63 N. 4th St.
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		40 Fairview Heights.	
John Henry Gaskins	L. . . .	Danville	13 S.
Edwin Clark Gilland	C. . . .	Shamokin	Kuhn's.
Harrison Van S. Goodrich . . .	E. E. . .	Brooklyn, N. Y. . . .	121 McK.
Erwin Willard Grove	L. . . .	Ringoes, N. J., 601 High St.	
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		601 High St.	
Philip Stone Harrison, . . .	Ch. . . .	Cirralvo, Mexico	88 N.
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		1044 Northampton St.	
John Bernard Hawley	C. E. . .	Wilkesbarre	56 S.
Ruger Wilson Hay	E. M. . .	Easton	14th St.
Reuben Harold Hellick	C. E. . .	Easton	510 Northampton.
Otto Ludwig Hellman	C. . . .	Waterbury, Conn. . . .	101 McC.
Grover Cleveland Hess	Ch. . . .	Easton	704 Washington St.
John Royden Hess	L. . . .	Phillipsburg, N. J. . . .	
		163 N. Main St.	
William Vicary Hetchie	C. E. . .	Freedom	97 McK.
Paul Kinsley Holgate	L. . . .	Scranton	111 McK.
Robert Lewis Horner	C. . . .	Emmitsburg, Md. . . .	65 B.
Thomas Locke Hoskins †	L. . . .	West Chester	153 E.
John Nelson Hoxie	G. S. . .	Utica, N. Y.	—
Jeffrey Dobezal Hrbek	L. . . .	Cedar Rapids, Iowa, Kuhn's.	
Joshua Fletcher Hunter	C. E. . .	Wyncote	107 McK.
Stephen Ralph Hyney	C. E. . .	Albion, Mich.	—
Lawrence Bailey Jackson	E. E. . .	Westfield, N. J.	95 McK.
William Lewis Jackson	Ch. . . .	Chester, N. Y.	46 S.
Clemen Hilard Kessler	C. E. . .	Easton	418 Cattell St.
Percival Hendricks Ket-			
cham	C. E. . .	Westfield, N. J.	24 S.
Hilary Brunot Klingens-			
smith	C. . . .	Blairsville	100 McK.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Kreider Ettinger Kurtz . . .	E. E. . .	Mifflinburg . . .	131 McC.
William Sloan Lare	L.	Flemington, N. J. . .	—
James Howard Laubach † . . .	G. S. . .	Northampton	176 E.
Gebhard Joseph Long	C.	Tower City	601 High St.
Floyd Burton McAlee	L.	Easton	1028 Ferry St.
Alexander Wilson McCandless	L.	Pittsburgh	113 McK.
Jerome Alfred McFall	C. E. . .	Easton	331 Cattell St.
Howard Haley McIntire	Ch. . . .	Bridgeton, N. J. . . .	84 N.
Joseph Ware McIntire	Ch. . . .	Bridgeton, N. J. . .	101 McC.
Samuel Clarence McLaughlin	E. E. . .	Easton	40 Wilkesbarre St.
Homer George McMillan	C.	Kistler	342 Cattell St.
Warren McPherson	Ch. . . .	Bridgeton, N. J. . .	101 McC.
Harold Lathrope MacAskie, C.	C.	Scranton	223 McC.
Fay Sloan Mackerly	L.	Hillsboro, O.	180 E.
Horace Little Magee	L.	Easton	Winona Ave.
Harlem Hess Martin	E. E. . .	Phillipsburg, N. J., 435 S. Main St.	
Walter Dare Moore	C.	Seeley, N. J.	62 B.
William Uhlinger More	L.	Bridgeton, N. J. . . .	89 N.
Fred Leslie Morgan	C. E. . .	Alliance, Ohio	147 P.
Herbert Charles Moyer	E. E. . .	Easton	830 Wolf St.
Frank Milton Newbury	E. E. . .	Tunkhannock, 40	Cattell St.
Isaac Alonzo Nicholas	L.	Doylestown	139 F.
Erie Jacob Ochs	Ch. . . .	Allentown	145 P.
Asher J. Odenwelder, Jr.	L.	Easton	47 S. 4th St.
Thomas Osborn	C. E. . .	Wainscott, N. Y. . . .	157 E.
William Edwin Peters	C.	Harrisburg	228 McC.
Philip Roswell Phillips	C.	Scranton	94 McK.
Edgar John Powell	E. E. . .	Scranton	69 B.
Wilson Franklin Rabenold	C. E. . .	Allentown	228 McC.
Frank Elmer Reeder	L.	New Bloomfield	87 N.
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Solon Aaron Reinhard	C. E. . .	Kutztown	305 Cattell St.
Herbert Hunphin Robertson, L.	L.	Pittsburgh	73 K.

NAME.	COURSE OF STUDY.	RESIDENCE.
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William James Ruch, Jr.	C. E.	Pittsburgh 86 N.
Henry DeWitt Saylor	Ch.	Easton 202 S. 6th St.
Claude Francis Schaeffer	C.	Easton 626 Ferry St.
Alexander Brady Sharpe	C.	Chambersburg D. K. E.
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Thomas Alden Shields	C. E.	Hackettstown, N. J. Home.
Jed David Shilling	C. E.	Cornwall 59 S.
Nathan George Shimer	C. E.	Easton 313 Bushkill St.
William Weaver Shuster	E. E.	Shamokin Kuhn's.
Thomas Boughton Silliman,	E. M.	Easton 122 McC.
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Hamilton Ross Smith	C.	Media 70 B.
Jay Mark Smith	E. E.	Duluth, Minn. 151 P.
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Stephen Nelson Stryker	E. E.	Phillipsburg, N. J. 115 S. Main St.
Samuel Don Stuart	C. E.	Carlisle 230 McC.
Bascom Augustus Taylor	G. S.	Wyalusing 317 McC.
Justus Vinnett Taylor, Jr.,	G. S.	Wyalusing 317 McC.
Rolland Marshall Teel	L.	Hackettstown, N. J., Home.
Joseph John Thomas	C.	Hazleton 50 S.
Ralph Edward Thomas	C.	Phillipsburg, N. J. Morris and Fillmore Sts.
Percy Jerome Thompson	C. E.	Patterson, N. Y. 130 McC.
Mark Townsend, Jr.	L.	Linwood, N. J. 36 S.
Fred Walter Uhler	E. M.	St. Peter, Minn S. 3d St.

FRESHMEN.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Jacob Peter Uhler	E. E. . .	Stockertown	Home.
Sayre Pancoast Uhler	C. . . .	Easton	133 Cattell St.
Otto Wack	C. E. . .	Lansdale	328 McC.
Charles Sharp Ware	L. . . .	Bridgeton, N. J. . .	101 McC.
Mark Hamilton Watson	G. S. . .	Indiana	40 Cattell St.
Albert Maurice Wiley	E. M. . .	Colora, Md.	176 E.
Edmund Graham Wilson	C. . . .	Philadelphia	110 McK.
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Louis Frederick Wilzin	L. . . .	Greenville, Miss. . . .	142 P.
Fred Chase Witte†	C. E. . .	Trenton, N. J.	78 K.
Frank Yocum	C. E. . .	Reading	66 B.
FRESHMEN			135

SUMMARY.

GRADUATE STUDENTS	14
UNDERGRADUATES	Seniors 71
	Juniors 87
	Sophomores 127
	Freshmen 135
Total	434

COURSES OF STUDY.

Graduate Courses 14	Civil Engineering 76
Classical 124	Electrical Engineering 44
Latin Scientific 99	Mining Engineering 24
General Scientific 11	Chemical 42

CLASSIFICATION BY RESIDENCE.

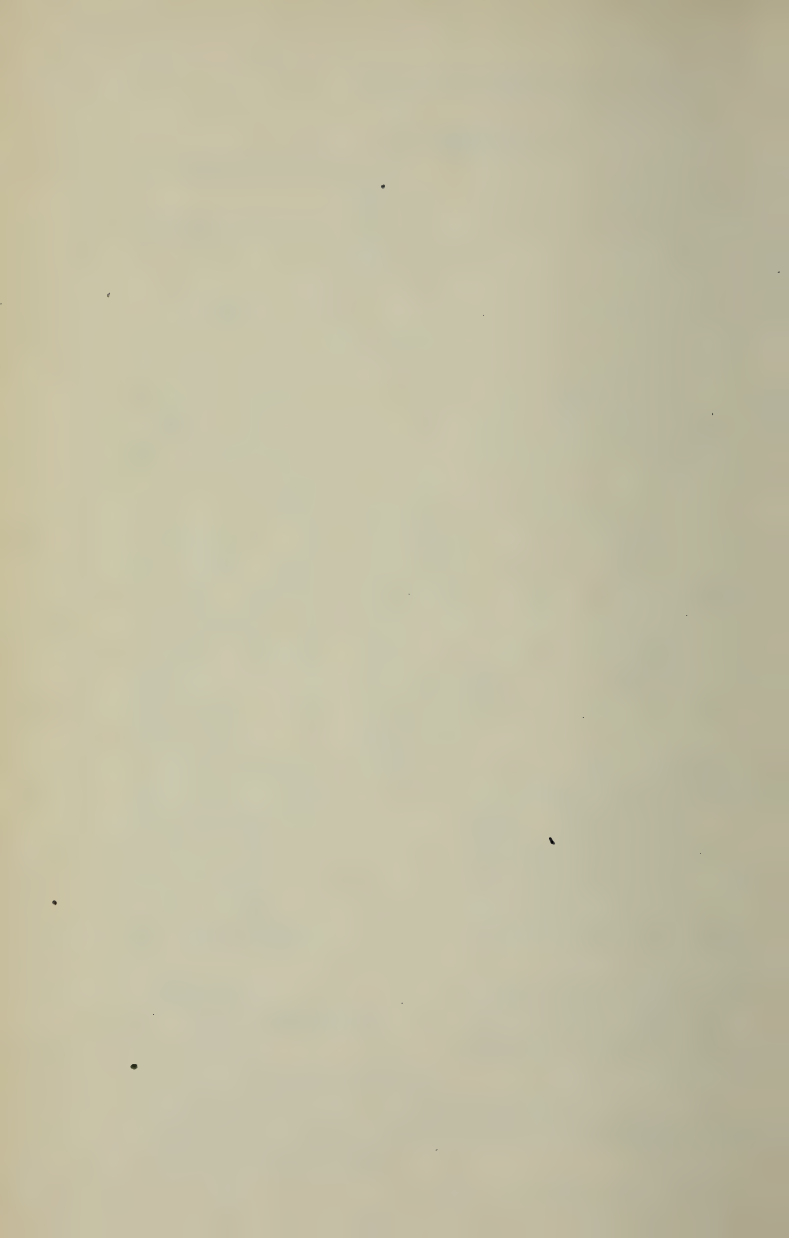
Colorado 1	Michigan 1	Texas 2
Connecticut 3	Montana 1	Utah 1
Delaware 6	New Jersey 74	West Virginia 2
District of Columbia 2	New York 22	Brazil 1
Iowa 2	Ohio 4	England 1
Maryland 9	Pennsylvania 291	India 1
Minnesota 3	South Carolina 1	Mexico 3
Mississippi 1	South Dakota 1	
	Tennessee 1	

ABBREVIATIONS OF ROOMS AND COURSES OF STUDY.

Brd.—Brainerd Hall.	McC.—McCartney St.
B.—Blair Hall.	McK.—McKeen Hall.
E.—East Hall.	N.—Newkirk Hall.
F.—Fayerweather Hall.	P.—Powell Hall.
K.—Knox Hall.	S.—South College.
M.—Martien Hall.	D. K. E.—Fraternity House.

C.—Classical.	E. M.—Mining Engineering.
C. E.—Civil Engineering.	G. S.—General Scientific.
Ch.—Chemical.	L.—Latin Scientific.
E. E.—Electrical Engineering.	

† Partial course; not candidates for a degree.
 ‡ Permitted to recite; constructively not candidates for a degree.
 — Absent by permission.



1902.							1903.							1904.													
JULY.							JANUARY.							JULY.							JANUARY.						
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AUGUST.							FEBRUARY.							AUGUST.							FEBRUARY.						
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31	30	31	
SEPTEMBER.							MARCH.							SEPTEMBER.							MARCH.						
...	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5
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21	22	23	24	25	26	27	22	23	24	25	26	27	28	20	21	22	23	24	25	26	20	21	22	23	24	25	26
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16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28	22	23	24	25	26	27	28
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DECEMBER.							JUNE.							DECEMBER.							JUNE.						
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14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19	12	13	14	15	16	17	18
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26	19	20	21	22	23	24	25
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IN THE

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EMBRACING THE

SCHOOLS OF CIVIL, MINING, AND ELECTRICAL
ENGINEERING, AND OF CHEMISTRY.

SEVENTY-SECOND YEAR,
1903-1904.

EASTON, PENNSYLVANIA.

1904.

VERITAS LIBERABIT.

CONTENTS.



	PAGE
Calendar	5
Lafayette College	6
Board of Trustees	7
Faculty	8
Admission	11
Courses of Instruction in all Departments	17
The Bible—Physical Culture	17
Classical Department:—	
The Course of Study	19
Mental and Moral Philosophy	20
History and Political Science	22
Rhetoric and Elocution	26
Languages and Literatures	27
Mathematics and Astronomy	34
Physics	36
Chemistry	37
Biology	37
Special Courses in Biology for Students preparing for the Study of	
Medicine	39
Geology	41
Synopsis of Classical Studies	43
PARDEE SCIENTIFIC DEPARTMENT:—	
General Courses:—	
Latin Scientific Course	48
The Course of Study	49
General Scientific Course	52
The Course of Study	57

Technical Courses:—	PAGE
Courses common to all Departments	59
Mathematics, Surveying, Drawing, Logic, Rhetoric and Elocution, Mineralogy, Physics, Chemistry	59
Civil Engineering Course	68
Summer School of Engineering	74
Mining Engineering Course	78
Electrical Engineering Course	85
Chemical Course	90
General Information	97
Arrangement of Lectures and Recitations	97
Attendance	97
Examinations, Standing	97
Absences and Re-examinations	98
Graduation, Commencement, Degrees	103
Religious Instruction	106
Lectures	108
Terms and Vacations	108
Buildings	109
Libraries and Reading-Rooms	113
Scientific Collections	117
Literary and Scientific Societies	118
Expenses	119
Bequests and Devises	124
Prizes and Scholarships	125
Recent Additions	130
Degrees and Honors Conferred, 1903	132
Commencement, 1903, Prizes	133
Alumni Associations	138
Students:—	
Graduate Students	140
Undergraduates	141
Summary	155

LAFAYETTE COLLEGE.

Lafayette College enters upon the work of the new century with every reason to feel that the hopes of the Founders, far back in the nineteenth century, have been realized. It has grown steadily and surely with the growth of the country. Its Faculty has won wide recognition and has grown in numbers. Its students are more numerous than at any time in its history. Its lovely site has been beautified by a noble group of buildings. In the last year of the just closed century a new era has begun in the erection of the Van Wickle Library and the reorganization of the dormitories. The Gayley Laboratory of Chemistry and Metallurgy, and a building for the Y. M. C. A., the gift of Mr. J. Renwick Hogg, are the most recent additions to the College buildings. With all its growth, Lafayette College remains in fact and in purpose a college; its aim is the education of men; its ideals are determined by moral as well as intellectual considerations; its atmosphere is distinctly Christian.

The College was granted its first charter March 9th, 1826. Its first exercises were held May 9th, 1832, under the presidency of Rev. George Junkin, D. D. The present beautiful site was first occupied in 1834. The College was taken under the care of the Synod of Philadelphia of the Presbyterian Church in 1850. In 1866, during the presidency of Rev. William C. Cattell, D. D., the Pardee School of Science was established by Ario Pardee, Esq. It is situated at Easton, Pa., at the confluence of the Delaware and Lehigh Rivers, and is easily accessible by a number of railroads.

TRUSTEES.

JOHN WELLES HOLLENBACK, <i>President</i>	Wilkesbarre, Pa.
REV. J. H. MASON KNOX, D. D., LL. D.*	Baltimore, Md.
JAMES W. LONG †	Easton, Pa.
HON. WILLIAM S. KIRKPATRICK, LL. D.	Easton, Pa.
REV. ETHELBERG D. WARFIELD, D. D., LL. D.	Easton, Pa.
ISAAC P. HAND, ESQ.	Wilkesbarre, Pa.
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ISRAEL P. PARDEE	Hazleton, Pa.
CHARLES B. ADAMSON	Philadelphia, Pa.
JAMES R. HOGG	“ “
WILLIAM L. SHEAFER	Pottsville, Pa.
McCLUNEY RADCLIFFE, M. D.	Philadelphia, Pa.
REV. LEIGHTON W. ECKARD, D. D.	Easton, Pa.
EDGAR M. GREEN, M. D.	“ “
REV. WILLIAM C. ALEXANDER, D. D.	Washington, D. C.
CARROLL PH. BASSETT, C. E., PH. D.	Summit, N. J.
REV. WILLIAM A. PATTON, D. D.	Wayne, Pa.
JOHN MARKLE	Jeddo, Pa.
JOHN EDGAR FOX, ESQ.	Harrisburg, Pa.
JOSEPH DE FOREST JUNKIN, ESQ.	Philadelphia, Pa.
EDWARD J. FOX, ESQ.	Easton, Pa.
DAVID BENNETT KING, ESQ.	New York City.
NATHAN GRIER MOORE, ESQ.	Chicago, Ill.

* Died January 22d, 1903, *act.* 78.

† Died April 21st, 1903, *act.* 88.

SAMUEL L. FISLER, A. M., *Secretary and Treasurer*, Easton, Pa.

Of the above Trustees, Messrs. Long, '37; Kirkpatrick, '63; Hand, '65; Gayley, '76; Snodgrass, '57; Waller, '70; Pardee, '74; Adamson, '77; Hogg, '78; Sheaffer, '78; Radcliffe, '77; Eckard, '66; Green, '83; Alexander, '73; Bassett, '83; Markle, '80; J. E. Fox, '85; E. J. Fox, '78; King, '71; and Moore, '73, are Alumni of Lafayette College.

MEETINGS OF THE TRUSTEES.

Thursday, February 11th, 1904 ANNUAL BUSINESS MEETING.
 Tuesday, June 14th, 1904 COMMENCEMENT WEEK.
 Wednesday, October 19th, 1904 FOUNDER'S DAY.

FACULTY.

REV. ETHELBERT DUDLEY WARFIELD, D. D., LL. D.,
President, Professor of History and Political Science.
 (John I. Blair Foundation.)

FRANCIS ANDREW MARCH, LL. D., L. H. D., D. C. L., LITT. D.,
Professor of the English Language and Comparative Philology.

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*Professor of Modern Continental Languages and their Literatures, and
 Lecturer on European History.*

REV. ROBERT BARBER YOUNGMAN, A. M., PH. D.,
Professor of the Greek Language and Literature.

REV. SELDEN JENNINGS COFFIN, A. M., PH. D.,
 (James H. Coffin Professorship of Astronomy.)

JAMES W. MOORE, A. M., M. D.,
*Dean of the Pardee Scientific Department, Professor of Mechanics and
 Experimental Philosophy.*

CHARLES MCINTIRE, A. M., M. D.,
Lecturer on Sanitary Science.

JOSEPH JOHNSTON HARDY, A. M., PH. D.,
Professor of Mathematics and Astronomy.
 (George Hollenback Professorship of Mathematics.)

WILLIAM BAXTER OWEN, A. M., PH. D.,
Professor of the Latin Language and Literature.

EDWARD HART, PH. D.,
Professor of Analytical Chemistry.
 (William Adamson Professorship of Analytical Chemistry.)

JAMES MADISON PORTER, C. E.,
Professor of Civil and Topographical Engineering.

FRANCIS A. MARCH, JR., A. M., PH. D.,
Professor of English Literature.

WILLIAM SHAFER HALL, C. E., E. M., M. S.,
Professor of Mining Engineering and Graphics.
 (George B. Markle Professorship.)

REV. EDSALL FERRIER, D. D., LL. D.,*
Professor of Moral Philosophy and Hebrew.

* Died January 31st, 1903, *act.* 71.

JACOB D. UPDEGROVE, A. M., M. D.,
Lecturer on Hygiene, Director of Physical Training.

EDGAR MOORE GREEN, A. M., M. D.,
Consulting Physician in the Department of Physical Training.

ALVIN DAVISON, A. M., PH. D.,
Professor of Biology.
(Jessie Chamberlin Professorship of Botany.)

FREDERICK BURRITT PECK, PH. D.,
Professor of Geology and Mineralogy.

AMORY PRESCOTT FOLWELL, A. B.,
Associate Professor of Municipal Engineering.

REV. THEODORE ALLEN ELMER, A. M.,
Acting Professor of Moral Philosophy and Hebrew.

ALLAN ROBERTS, PH. B., M. S.,
Instructor in History.

WILLIAM DARLINGTON LITTLE, A. M.,
Tutor in Mathematics and Latin.

HARRY HESS REICHARD, A. B.,
Tutor in German and Greek.

STANLEY EUGENE BRASEFIELD, C. E., M. S.,
Instructor in Mathematics and Graphics.

REV. JOHN FREDERICK LOUIS RASCHEN, A. B.,
Instructor in Modern Languages.

CHARLES LAZARUS BRYDEN, E. M.,
Assistant in Chemistry.

GEORGE ELWOOD FETTERS, E. E.,
Instructor in Mathematics and Drawing.

JOHN WILLIAM TURRENTINE, M. S.,
Assistant in Chemistry.

CLINTON ARTINIUS BERGSTRESSER, A. B.,
Tutor in Latin and Mathematics.

LEONARD PERLEY DICKINSON, B. S.,
Instructor in Electrical Engineering.

COLLEGE OFFICERS.

ROBERT BARBER YOUNGMAN, PH. D.,
Clerk.

SELDEN J. COFFIN, PH. D.,
Registrar.

AUGUSTUS A. BLOOMBERGH, PH. D.,
Curator of the Reading Room.

JAMES W. MOORE, A. M., M. D.,
Inspector of Buildings.

SAMUEL L. FISLER, A. M.,
Treasurer.

REV. JOHN F. STONECIPHER, D. D.,
Librarian.

EDWARD HART, PH. D.,
Curator of Gayley Hall, and Librarian of the Henry W. Oliver Library.

CLASS DEANS.

SENIOR CLASS The President.
 JUNIOR CLASS Professors Bloombergh and Elmer.
 SOPHOMORE CLASS Professors Youngman and Hall.
 FRESHMAN CLASS Professors Hardy and Owen.

LAFAYETTE COLLEGE.

ADMISSION.

Every applicant for admission to the College is expected to report at the College offices and register immediately on his arrival. Before registering he must submit to the Registrar a satisfactory certificate of moral character from his pastor or some other person known to the College authorities, a certificate of honorable dismissal from the last school which he attended, a statement of the studies which he has pursued and the course which he desires to pursue. His application having been approved he is admitted to the examinations. Examinations are regularly held on the day following the annual commencement day in June, and the day preceding the first day of the autumn term in September, and also on the first day of the second and third terms.

REQUIREMENTS FOR ADMISSION TO THE FRESHMAN CLASS.

Candidates for admission to the Freshman Class are examined in the following books and subjects. It is strongly recommended that candidates be prepared for examination on the requirements as specified. Equivalents will be accepted only when absolutely necessary.

A. REQUIREMENTS IN ALL THE COURSES OF STUDY.

GEOGRAPHY.—*Modern*: Political Geography or Physical Geography.

HISTORY.—*United States*: Johnston, McMaster, or Fiske, and Outline of General History.

MATHEMATICS.—*Arithmetic*: Complete, including the Metric System.

Algebra: Through Radicals and Quadratics (first thirteen chapters of Wentworth's College Algebra, or an equivalent).

Geometry: Plane Geometry entire; as in Wentworth or Loomis.

ENGLISH.—*Grammar*: A general examination will be given without special reference to any particular text-book to test familiarity with paradigms and syntactical analysis, and the correct use of English idioms.

Franklin's Autobiography and *Milton's Paradise Lost*, Books I. and II.; to be thoroughly studied as to subject-matter, form, and structure, including the language used, as to its etymology, syntax, and prosody.

Prose Composition: The writing of a short essay will be required upon a subject drawn from the foregoing text-books. No candidate will be accepted in English whose work is notably deficient in point of spelling, punctuation, idiom, or division into paragraphs.

The works recommended for study by the Association of Colleges and Preparatory Schools of the Middle States and Maryland will be accepted in place of Franklin and Milton, as follows:—

1902-1906: Shakespeare's *Julius Cæsar*; Milton's *L'Allegro* and *Il Penseroso*, *Comus*, *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton and Life of Johnson*.

In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

Reading: Every candidate must have read a certain number of works of English literature. It is expected that the reading shall be done under the direction of an instructor and accompanied by frequent examinations during the preparatory course, for which four years is appropriate.

The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books. In preparation of this part of the requirement, it is

important that the candidate shall have been instructed in the fundamental principles of rhetoric.

The books set for this part of the examination will be those recommended by the Association of Colleges and Preparatory Schools of the Middle States and Maryland, as follows:—

1901 and 1902: Shakespeare's *Merchant of Venice*; Pope's *Iliad*, Books I, VI., XXII., and XXIV.; *The Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Cooper's *The Last of the Mohicans*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

1903-1906: Shakespeare's *The Merchant of Venice* and *Macbeth*; *The Sir Roger de Coverley Papers* in *The Spectator*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe* and *Lady of the Lake*; Tennyson's *Gareth and Lynette*, *Launcelot and Elaine*, and *The Passing of Arthur*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

B. ADDITIONAL REQUIREMENTS FOR THE SEVERAL COURSES. CLASSICAL COURSE.

GEOGRAPHY.—*Ancient Geography*.

HISTORY.—*Roman History* to Augustus and *Greek History* to Alexander.

LATIN.—*Grammar*: The Roman method of pronunciation is used.

Cæsar: Commentaries, four books, for a portion of which an equivalent in Nepos will be received.

Cicero: Orations, seven.

Virgil: Æneid, six books; *Bucolics*.

Prose Composition: Daniell's, or equivalent.

GREEK.—*Grammar*: Pronunciation according to the written accents and in accordance with the preface to Goodwin's *Grammar* or Hadley-Allen's, sections 11, 14, 19, 20, 21.

Xenophon: Anabasis, four books, for a portion of which an equivalent in *The Cyropedia* will be received.

Homer: Iliad or *Odyssey*, three books; or

New Testament: Gospels, three.

Prose Composition: Collar and Daniell, or equivalent.

For admission to the—

LATIN SCIENTIFIC COURSE.

The requirements are the same as for the *Classical Course* except that for the *Greek* is substituted:—

NATURAL PHILOSOPHY.—The elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—A thorough knowledge of the Grammar and one hundred pages of simple prose.

For admission to the—

GENERAL SCIENTIFIC COURSE.

The requirements are the same as for the Classical Course except that both *Latin* and *Greek* are omitted, and instead of the Ancient Languages are substituted:—

SOLID GEOMETRY.

ALGEBRA AND PLANE TRIGONOMETRY as stated in Technical Courses below.

NATURAL PHILOSOPHY.—The elementary principles; and

GERMAN.—Two years' study.

The first year's study in German is intended to embrace a thorough knowledge of the Grammar, the reading of one hundred pages in a reader, and the reading of Storm's *Immensee*. The second year's study should cover frequent practice in Prose Composition, the reading of Lessing's *Emilia Galotti*, and ability to read a play of Schiller.

TECHNICAL COURSES.

For admission to the schools of ENGINEERING and CHEMISTRY the additional requirements are as follows:—

SOLID GEOMETRY.

ALGEBRA.—Properties of quadratic equations; indeterminate equations; inequalities; ratio, proportion, and variation; arithmetical, geometrical, and harmonical progressions (chapters XIV., XV., XVI., XVII., and XVIII. of Wentworth's College Algebra, or an equivalent).

PLANE TRIGONOMETRY.—It is proposed to make this subject a requirement beginning with June, 1905.

GEOGRAPHY.—Physical Geography.

NATURAL PHILOSOPHY.—Elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—Two years' study in GERMAN as above.

PARTIAL OR SPECIAL COURSES.

In addition to the courses above specified students may be admitted under exceptional circumstances to pursue courses of study of a special character not leading to a degree. Such students are required to undergo such preliminary examination as may be deemed necessary to ascertain their fitness to pursue the proposed course, and when admitted they are subject to the same rules and regulations and the same examinations in the studies pursued as are other undergraduates. On completing their course they will receive, on application, certificates of proficiency in such courses as they have satisfactorily completed.

ADVANCED STANDING.

Candidates for advanced standing are examined not only in the preparatory studies, but also specially in the previous studies of the class they wish to enter, or their full equivalents.

Students from another College bringing certificates of rank and honorable dismissal are permitted to recite on trial with corresponding rank in this College, until there is sufficient test of their qualifications for admission to regular standing. They will, however, be examined on whatever studies of the course may not be in the curriculum of the College from which they come, unless there are full equivalents.

No student, whether from another College or not, will be admitted to the Senior Class as a candidate for a degree after the beginning of the second term.

CONDITIONS.

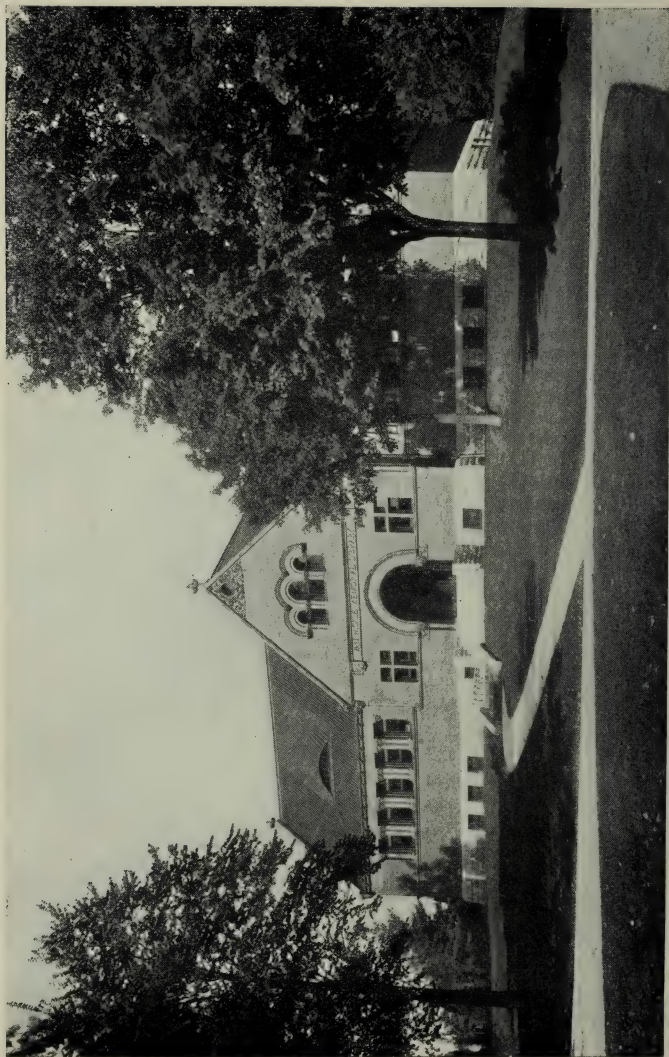
Students who fail to pass in a part of the subjects in which they are examined may be admitted upon the condition that they pass a satisfactory examination on such subjects before the end of the term next after that in which they enter. The number of such conditions with which a student is admitted to the College will be determined in each case by a vote of the Faculty.

CERTIFICATES.

Certificates of the Regents of the University of the State of New York and of certain approved preparatory schools are received in lieu of examination for entrance. Certificates from schools must be signed by the Principal and certify only to work done during school hours. They should be filed with the Registrar before the entrance examination in June. Blank certificates will be furnished upon application. Wherever the certificate does not cover one or more of the requirements of admission or supply a satisfactory equivalent, an examination upon such subject or subjects will be required. Such certificates will not be received after one year from the completion of the period of study for which they are given unless an additional certificate of continued study accompany them.

MATRICULATION.

No student is considered a regular member of the College until after his matriculation, which takes place thirty days after his entrance. During the interval between his admission and matriculation he is, however, in all respects subject to the laws of the College.



VAN WICKLE MEMORIAL LIBRARY.

COURSES OF STUDY REQUIRED OF ALL DEPARTMENTS.

All of the courses of study are so arranged as to provide for at least three lectures or recitations each week-day except Wednesday and Saturday, which are half-holidays, there being no afternoon recitation. Wednesday evening is set apart for the Literary Societies, and in order to co-operate with their work the first exercise on Thursday morning is given to elocution. Every student is expected to conform to this arrangement of hours. Special students must arrange a schedule of sixteen weekly exercises. One recitation hour is regarded as the equivalent of three hours of field and laboratory work.

BIBLICAL INSTRUCTION.

The morning recitation in every class of all departments on Monday in each week is given to Biblical instruction. In the Freshman year a general view of the contents of the Bible and of each book is given, with special attention to chronology, history, and geography. The class is divided into three sections, instructed by Prof. Hardy, Prof. Hall, and Mr. Bergstresser. The text-books are the English Bible and Coleman's Geography of the Bible. In the Sophomore year the Acts of the Apostles is studied. The students in the Classical Course read the book in the original Greek with Prof. Youngman; those in the Latin Scientific in Latin with Prof. Owen, and the Technical divisions in French with Mr. Raschen and Mr. Reichard. Special attention is given to the lives and labors of the Apostles and to the founding of the Christian Church. In the Junior year the Epistle to the

Romans is studied. The students in the Classical Course read it in the original with Prof. Francis A. March, and the students in the Scientific Courses, in German, with Prof. Bloombergh. The Epistle is studied with reference both to language and doctrine with much care and iteration. In the Senior year a course, in which Uhlhorn's Conflict of Christianity and Heathenism is used as a text-book, is given during the first half of the year by the President, and during the remainder of the year in the History of the English Bible. In addition to these courses the Old Testament in the original Hebrew is offered as an elective study in the Senior year, and instruction in the history of the English Bible, its translations and its translators, its merits and its influence, is given. It is intended that the Bible shall be a central object of study throughout the course. It is dealt with reverently as the Word of God, and as the inspired and infallible rule which God has given to His people.

In connection with the study of the Bible, certain prizes were established by the Rev. Lyman Coleman, D. D., sometime Professor of Biblical and Physical Geography in Lafayette College. These prizes are awarded at the end of Freshman year. (See page 126.)

PHYSICAL CULTURE.

HUMAN PHYSIOLOGY.

The lectures on Health to the Freshman Class include the general principles of Physiology and Anatomy, and are thorough and practical, and illustrated by diagrams. Special consideration is also given to the bearing of the facts and principles upon Natural Theology.

THE GYMNASIUM.

The College has ample ball grounds, tennis grounds, and boating facilities, a light, airy, tasteful gymnasium, thoroughly equipped with the best modern appliances, dressing-room, bath-rooms, &c., and uses a thorough system of physical culture, participated in by all the students, who are required to be in the Gymnasium at set times for class drill. The Gymnasium is also open at given hours for voluntary work. Before entering the Gymnasium each student must be examined by the Medical Director, and if it is found that the regular class exercises are not likely to be healthful for him, other exercises will be prescribed suited to his constitution and condition. All the exercises in the Gymnasium are under the supervision of the Director of Physical Training.

A fine athletic field has recently been purchased and equipped by the Alumni and the Easton friends of the College. It adjoins the campus on the west, and affords excellent facilities for all out-door sports.

All athletic sports are under the careful supervision of a committee of the Faculty, of which the Medical Director of the Gymnasium is a member. *No student is permitted to take part in public contests without written permission from his parents.*

CLASSICAL DEPARTMENT.

The Classical Department consists of the historic course in the *Arts, or Humanities*, and retains the regular character of that course, which has so long been regarded as the foundation of a liberal education. The course has a fixed curriculum during the earlier years, but in the

latter part of the course latitude is allowed by the introduction of elective studies for the student to select such studies as he deems the best preparation for his subsequent pursuits.

This Department being the usual preparation for the learned professions, including teaching and journalism, special regard is given to the necessities of these professions, so that in addition to being the thoroughly tried means of securing a broad and liberal culture and an approved foundation of Christian scholarship, it is particularly fitted to prepare men for the learned professions. It is also recognized as a desirable preparation for other pursuits, including scientific and technical professions, wherever the circumstances of the student will permit.

The instruction embraces a systematic study of the Bible and the Evidences of Christianity throughout the course, of the Ancient and Modern Languages and their literatures, together with Comparative Philology; Pure and Applied Mathematics; Physics, Chemistry, and the Natural Sciences; Rhetoric and Elocution; Logic and Metaphysics; History and Political Science; and Mental and Moral Philosophy.

PHILOSOPHY.

MENTAL AND MORAL PHILOSOPHY.

Professors March and Elmer.

Mental Philosophy is a required study of Senior year, and is pursued under the direction of Prof. Francis A. March. The text-books used are Haven's Mental Philosophy and Baldwin's Psychology, but the students are required to work up the topics by self-examination, by the

study of the investigations of the most eminent authors, and by class discussions. Weekly written essays are also required of every student, in which he is expected to record the results of such special investigations.

Ethics is required during the first term of the Senior year. The text-book used is Seth's *A Study of Ethical Principles*. The course aims to outline the psychological basis of Ethics, the nature of the moral ideas, and the metaphysical implications of morality.

Theism is a required study during second and third terms of Senior year, the text-books being Flint's *Theism* and Hibben's *Problems of Philosophy*. The course seeks to expound the grounds of theistic belief, and to investigate the final problem of metaphysics, *i. e.*, as to the nature of Ultimate Reality. The anti-theistic theories are also taken up, critical attention being given to Agnosticism, Positivism, Materialism, and Pantheism.

Logic is a required study in the third term of Junior year. The text-book is Jevons' *Primer of Logic*. This is supplemented by lectures on Mill's theory of Induction, especial attention being given to scientific method.

The history of modern philosophy is offered as a Senior elective in the second and third terms. Lectures are given on the principal philosophers, from Bacon to contemporaneous thinkers. The lectures seek to exhibit the historical and philosophical connections of the various movements of modern philosophy, and to give a critical estimate of them. No text-book is used, but the students are referred to the writings of the masters themselves, and to some of the histories of philosophy, as *Erdmann*, *Uberweg*, *Windelband*, and *Falckenberg*.

HISTORY AND POLITICAL SCIENCE.

ANCIENT HISTORY.

Professors Youngman and Owen.

In connection with the courses in Latin and Greek a very careful survey is given of Ancient History, but especially of the history of Greece and Rome. The topics immediately connected with the authors read are given particular attention, but an attempt is made to bridge the period intervening, and as the authors represent the most important periods of the history of Greece and Rome the result is that the historical accent is rightly placed. Attention is given not merely to the political history of the various periods under discussion but also to the social, literary, and philosophical history of each epoch. The close relation which exists between History and Geography is recognized, and a careful study of Classical Geography forms a part of the course.

HISTORY OF EUROPE.

Professor Bloombergh and Mr. Roberts.

An elective course is offered in the second and third terms of Senior year, which begins with the fall of the Roman Empire and traces the rise and growth of European institutions through the Middle Ages. Emerson's *Introduction to, and History of, the Middle Ages* are used as text-books, and are supplemented by lectures and library work.

During the third term a course of lectures is given to the Seniors by Professor Bloombergh on the Origin and Development of the Institutions of Modern Europe.

These lectures begin with an inquiry into the causes of the Dark Ages, trace the influences which led to the Reformation and the Renaissance, and the influence of the new impulses upon modern thought and action. These lectures while dealing largely with the philosophical side of History are so related to the previous instruction as to rest upon known facts.

CONSTITUTIONAL HISTORY.

THE UNITED STATES.

The President and Mr. Roberts.

An optional course, especially designed to prepare for the required courses in the Constitutional History of the United States, is offered in the first term of the Junior year. This course consists mainly of prescribed reading, with written reports upon the history of the American Colonies, the relations with Great Britain prior to 1775, and the causes and consequences of the Revolution.

The required work begins in the second term of the Junior year with a course dealing with the Constitution from the point of view of its historical development. Fiske's *Critical Period of American History* is used as an introduction to this course, and it is accompanied by a critical study of several important constitutional documents, such as *Magna Charta*, the *Petition of Rights*, the *Articles of Confederation*, and the *Ordinance of 1787*. Then the Constitution is taken up section by section and studied with reference to its historical development and its subsequent interpretation and construction.

This course is followed in the third term of the Junior

year by a course dealing with the constitutional history of the first thirty years under the Constitution, which undertakes to investigate the more important constitutional questions of the early years of the Republic with sufficient thoroughness and care to give the student a firm grasp of a sound method of historical study.

The study of American institutions is interrupted in the first term of Senior year by a course in general constitutional history, but is resumed in the second and third terms with a wider outlook. A more detailed study is now given to the whole subject, with Bryce's *American Commonwealth* as an introduction and general guide. It is supplemented by lectures and discussions.

These three courses are designed to give a broad and intelligent basis for American citizenship, and to prepare the way for original investigation in American history. The Ward Library is rich in material for special studies, and every effort is made to encourage the student to make independent researches.

ENGLAND.

Some period in English Constitutional History is offered each year as an elective study. The period is usually one which is closely related to the questions arising in the history of the United States, and while studied for its own sake, its value as throwing light on American History is brought out.

GENERAL CONSTITUTIONAL HISTORY.

A course in general constitutional history is begun as a required course in the first term of the Senior year and continued as an elective through the second and third

terms. It begins with the origin of the State, and following the plan of Woodrow Wilson's *The State*, pursues the development down to the present time. The recitations are supplemented by lectures and reading, with written reports of investigations.

POLITICAL SCIENCE.

The President and Mr. Roberts.

This Department embraces courses in the elements of International Law, and in the origin and development of the State in the first term of Senior year, and in Political Economy in the second term of Senior year, and elective courses by Dr. March in Blackstone's Commentaries, and by the President in the elements of Jurisprudence.

The course in International Law undertakes to do little more than to exhibit the fundamental principles which govern international affairs, and by the study of a few important cases to show the method of diplomatic procedure. It is especially intended to give the students the information needed to understand current discussions of foreign relations. In the theory of the State, Prof. Woodrow Wilson's book is used, and is supplemented by lectures illustrating the analytical method.

The course in Political Economy at present consists of a rapid survey of the principles, and only limited time is given to the discussion of practical applications of economic theories. Special attention, however, is given to the questions which are vital issues of the day, such as Finance and the Tariff. The utmost care is taken to avoid the teaching of party politics under the guise of

Economic Science. At the same time the teaching in this Department recognizes the importance of inculcating honest views on the money question and the right of American citizens to know what can be said for the American policy of Protection both in the abstract and in its actual workings.

All these courses are supplemented by papers, essays, and debates. The Literary Societies and the public debates do much to stimulate interest in the class work, and to give it practical application.

RHETORIC AND ELOCUTION.

The course in Rhetoric includes earlier instruction and praxis in Diction, Figures of Speech and Style, and later in Invention and in the Principles of Rhetorical Criticism; and these applied to required practice in the writing of original essays, orations, and themes.

Besides the study of text-books, weekly written essays are required, and declamations in class or before the College. *Extemporaneous Speaking* is also cultivated. In those studies, such as Mental Philosophy, in which the recitation can be had by topics, students are required to take the floor daily and present an outline of the author's thought, with such additions as they choose in the form of a lecture to the class. Extemporaneous (unwritten) debates are also had in class. The Juniors, during the third term, and the Seniors deliver unwritten addresses on subjects of their own choice, instead of selected declamations. The other classes speak selected pieces. Great pains are taken to encourage the habit of simple and earnest communication of connected thought.

THE GREEK LANGUAGE AND LITERATURE.

Professor Youngman and Mr. Reichard.

The aim of the Greek course is to be thoroughly grounded in Greek forms, idioms, and syntax—to learn the composition of words, the formation of phrases, and the construction of sentences. In the earlier part of the course there is a daily lesson in the grammar, with a test of the student's ability to apply it to the text just read. Etymologies and English derivatives are constantly called for.

The best passages of the best representative authors are translated into the best attainable English. In poetry there is a study of Homer, Sophocles, and Aristophanes; in prose, of Herodotus, for history; of Aeschines and Demosthenes, for oratory. For ethical questions there is a study of Socrates in the *Memorabilia* and the *Apology*.

Attention is directed to Greek life, education, faith, religion, and habits of thought and expression, as compared with our own. The old Greek citizen and the modern American citizen are brought face to face.

Essays also are called for giving the results of the students' researches. When DeCorona is read there is a special class debate on the relations of Aeschines and Demosthenes with Philip. When Homer is read there are references to the Bible for comparison of faith, religion, and form of expression. There is an attempt to bring the students to an intelligent appreciation of the beauty and grace and force in Greek literature to cultivate the taste, regulate the heart, and discipline the mind.

THE LATIN LANGUAGE AND LITERATURE.

Professor Owen, Messrs. Little and Bergstresser.

It is the aim in this Department to give the students an intelligent acquaintance with the language, literature, and institutions of Rome, and qualify them for the efficient treatment of these subjects as teachers, or for the further scholarly pursuit of these and kindred studies after graduation if they should be so disposed. We try to unite accuracy in details with facility in reading within the limits of a reasonable range.

The authors read are those which present the Latin language and literature at different stages, but mainly at its best; and the method of pursuing them is based on the belief that the best way to master these great works of genius, whether in their linguistic or literary aspects, is by the minute and careful study of selected passages. Such passages are examined, therefore, clause by clause and word by word, the common matters of grammar and idiom coming first. In the earlier parts of the course there is a grammar lesson with each recitation, and the application of grammatical principles to the text in hand forms an important part of the daily drill. The elementary principles of phonology and a review of etymology and general syntax are thus treated in the Freshman year, and in the Sophomore year a more exhaustive study of moods and tenses and the formation of words. Then come questions of style, the author's habits of diction, his use of synonyms, rhetorical forms of speech, the arrangement of words, &c., and, if poetry, the significance of metrical forms.

Literary and historical allusions are looked up, also mythology, biography, geography, antiquities, everything in short which can help to clear up the author's meaning.

Aside from these incidental inquiries in connection with every text, various collateral branches of study are regularly pursued from term to term. There is the topical study of history in connection with Livy and Cicero (*De Oratore*); of antiquities in connection with Horace; of literature in connection with Latin Hymns and Tacitus; and of the history of philosophy in connection with Cicero (*De Officiis*).

A brief course in Roman archæology is also given, illustrated by an extensive collection of Roman photographs.

It is kept in mind, also, that the training in this Department should be practically helpful and valuable to those who are to speak and write the English language. With a view to cultivate the power of expression, besides the oral work of the class-room there are frequent exercises in writing, in which it is sought to faithfully render the author into the English of our literary standards.

In preparation for the course in Comparative Philology given in the Senior year by Professor March, attention is called to the history of inflection, the origin and significance of the affixes of case, number, tense, mood, voice; to the physiology of speech, the regular weakenings of sound, and a comparison of forms in the Latin, both etymological and syntactical, with the corresponding forms in the Greek and English.

The Latin is pronounced according to the Roman method. Harper's New Latin Lexicon is used; Allen & Greenough's Latin Grammar is used as a text-book; the larger grammars of Madvig and Roby will be found helpful for references.

THE HEBREW LANGUAGE.

Professor Elmer.

Hebrew is an elective study in the second and third terms of the Senior year. As preparatory to more advanced work, special attention is given to the etymological principles of the language, and also to the inflexions and laws of euphonic changes. To apply these principles, and to acquire a good working vocabulary, portions of Old Testament History are read, and translations made from English into Hebrew. The text-book used is Prof. Green's Elementary Hebrew Grammar.

ENGLISH LANGUAGE, COMPARATIVE PHILOLOGY.

Prof. Francis A. March, Sr., and Prof. F. A. March, Jr.

For training in speaking and writing English correctly every student is required to hand in two themes in every term of his college course. Many of them are read in class and criticised as time allows. In this work professors of all departments take part. It is desired that students in each department shall write on subjects connected with it in the words and phrases current among experts, and know the precise meaning of these words and phrases. In these matters the professors in each department are authorities.

The professors of foreign languages recognize that translation into English is training in English as well as in the foreign language, and written translations are required partly in the interest of English study.

The study of the language in literature is different from the training just described. Its immediate purpose is the interpretation of masterpieces, the rethinking of the thoughts of master minds. It needs all the philological knowledge which can be had to clear up and illuminate the language. Such study also furnishes the materials and invites the inductions of systematic and historical philology and theories of the growth of literature. It must be largely comparative study, and in the Classical Course it is thought best to defer it until the student has become acquainted with other languages. It is begun in the second term of Junior year with the study of Milton's "Paradise Lost." Anglo-Saxon is taken up at the same time and four recitations per week in each are prepared, the two languages being heard in immediate succession within a college hour.

In the third term Shakespeare and Anglo-Saxon are studied, and recited four times a week, as in the second term, and there are optional courses and prize examinations on Shakespeare in general, and English before Chaucer.

In the Senior year a general survey of English literature is made (two hours per week) in the second term. Four hours a week of the third term are devoted to Comparative Philology, summing up the results of former special studies and arriving at laws of language in general. For further details see page 56.

MODERN LANGUAGES.

*Professors Bloombergh, F. A. March, Jr., Messrs. Raschen
and Reichard.*

The work in this Department is based upon the view that the aim of the American college is not to make specialists but to give a many-sided, well-rounded education; hence the different branches of the curriculum must in their very nature be co-ordinated with each other and the time allotted to each limited. It follows from this co-ordination and from the limited time allotted to each of the several branches, that in the pursuit of linguistic studies in the modern Continental languages only such a method is possible that permits us in the time given to reach the result which it is proposed to achieve. This result is simply to give to the student the beneficial mental development resulting from a thorough linguistic training; a result formerly reached by the exclusive study of the dead languages and now sought by the study both of ancient and modern languages, either in conjunction, as in the Classical and Latin Scientific Courses, or by the modern languages exclusively, as in the General Scientific and Technical Courses. And, secondly, to acquaint the student with the masterpieces of modern literature, scarcely, if at all, inferior in literary value, and certainly not less important for the proper equipment of the cultivated scholar, than the works of the great masters of Greek and Latin. The method used may be regarded as a combination of the scientific and the historical methods. The scientific method being used to lay the foundation, and the historic to broaden and develop the results of the earlier method.

We propose—

(a.) To teach the present status of the grammar and vocabulary of the languages studied ;

(b.) To show how they acquired their present status ;

(c.) To introduce the study of the best writers of Germany and France in a progressive series, with special attention to contemporary literature, and, in a limited degree, to extend the same method to the literature of Spain and Italy ;

(d.) To trace the development and give some account of the principal writers whose works are studied.

In fine we purpose, so far as time will permit, to give careful and systematic instruction in grammar and phonetics, in the literature of the various important periods, together with the literary history of each epoch, with special reference to the German and French languages, but as far as possible keeping in view the relations between the languages, and particularly to English.

In instruction in grammar decided preference is given to the shortest possible text-books, such as Ahn's Synoptical German Grammar and Edgren's French Grammar. The ground of this preference is that a short grammar enables the student to begin reading the language at an earlier period, and the success of syntactical studies, which are but applied logic after all, depends less on the lifeless memorizing of rules of syntax than on the comments of the teacher in the class room.

The required study of French and German in the Classical Course is at present limited to a single term each, there being four recitations each week. An elective course in German and French is offered in the second

and third terms of the Senior year; and in the second term of the Junior year students may pursue Italian or Spanish.

It will be seen that the study of German and French is largely linguistic, though the amount of these languages taught is sufficient, with the previous information and training of the students in Latin, Greek, and English, to give a fair reading knowledge. Those who take the Senior electives generally possess a fair working knowledge of one or both of these languages.

MATHEMATICS.

Professor Hardy and Messrs. Little and Bergstresser.

The course in Mathematics embraces during the Freshman year the continuation of the study of Algebra, begun in the preparatory school (including a brief review of simple equations), to which the entire work of the first term in this Department (four hours per week) is given. In the first term Freshman year all have Algebra four hours per week. In the second term Division A has Algebra and Geometry each three hours per week. In the third term it has Geometry and Trigonometry each three hours per week. Division B has Algebra two hours per week and Geometry four hours per week in the second and third terms of the Freshman year.

In the Sophomore year Trigonometry and Mensuration occupy four hours per week during the first term. In the second term five recitations per week are given to the study of Analytical Geometry. The course is begun by the drawing of a large number of curves from their equations, so that from the first the student may see that

the properties of a curve may be studied by means of its equation. After that the demonstrations of the proposition usually given in the Analytical Geometries are constructed with the same strictness of reasoning, and every step in them is proved with the same logical rigor as in Euclid. A clear and correct figure showing every point and line mentioned in the demonstration is always required. It is hoped that at the conclusion of his demonstration the student shall see clearly and at once the meaning of every symbol in the equation obtained, and shall be perfectly sure of the truth of his conclusion. Training in clearness and accuracy of thinking, and in the effective expression of thought, is regarded as of the highest importance. Calculus is taken up in the third term of the Junior year, two hours per week being devoted to it that term, and two in the first term of the Senior year. The discussions of Differential and Integral Calculus are made as far as possible to illustrate the essential oneness of the two branches of the Calculus. A further course in higher branches of Mathematics is offered as an elective in the second and third terms of the Senior year. Field work in Surveying occupies a portion of the time during this term, amounting to an equivalent of one hour of recitation work in each week, that is, three hours of actual field work.

ASTRONOMY.

Professor Hardy.

The study of Astronomy is begun in the first term of the Senior year and continued through the second. It is illustrated by practical work in the Observatory with the

various astronomical instruments. The course includes a thorough study of the points and lines of the Celestial Sphere; a short discussion of the construction and use of the principal astronomical instruments; of Parallax and Refraction, and of the methods of determining Latitude, Time, and Longitude. Then follows a careful study of the Earth as a member of the Solar System; of the Moon; of the Sun, including the Spectroscopy of the Sun; of Eclipses; of the general laws and construction of the Solar System, and of the Planets and their Satellites. This is followed by a brief discussion of the methods of determining the Sun's Horizontal Parallax and a fuller discussion of Comets, Meteors, and the fixed Stars, including the Spectroscopy of these bodies. The course ends with a study of the general structure of the Stellar Universe and a discussion of the Cosmogony and the Nebular Hypothesis.

PHYSICS.

Professor Moore.

The studies in this Department in all the courses occupy four recitations or lectures a week for a year, beginning with the third term Sophomore year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments. In other subjects the study of the text-book is accompanied with illustrative lectures, aided by a valuable collection of apparatus and charts, which is continually enlarged and improved.

The course begins with an experimental demonstration of the fundamental principles of Statics and Kinetics in

connection with a mathematical treatment of the subjects. This is followed by very full lectures on Heat, Magnetism, Electricity, Sound, and Light. Daily written and oral examinations impress the laws and facts thus presented upon the student.

For the advanced studies of the technical courses in Analytical Mechanics and allied topics of Mechanical and Electrical Engineering, see pages 71 and 85.

CHEMISTRY.

Professor Hart and Messrs. Bryden and Turrentine.

The study in this Department begins with a course of lectures on General Chemistry, combined with the study of a text-book. In connection with these lectures each student is required to work in the Laboratory under the direction of the Professor. In the Senior year an elective course in Qualitative Analysis is also offered. Students in full standing who receive permission from the Faculty may also work in the Laboratory outside of recitation hours, if they so desire.

BIOLOGY.

Professor Davison.

The work in Botany is entirely elective. A general course in practical, morphological, and physiological Botany is open to the Seniors in the Fall term.

The College Herbarium is extensive and particularly rich in North American species, ranking in this respect among the best in the country. In its creation Dr.

Porter was actively engaged for nearly half a century. It has been gradually built up by personal collection, gift, exchange, and purchase, and well represents the growth of this branch of the science in the United States during this period of time. It contains the type-specimens of the species described by him. A library, also, rich in the literature pertaining to the subject, has been accumulated in the same way, and the letters received in correspondence with distinguished naturalists have been preserved. For field work in Botany the region around Easton possesses unusually fine material.

During the past year the entire herbarium has been re-poisoned, reclassified according to Britton's Manual of Botany, and placed in new cases in a separate room of the Biological Hall.

The results of some of Dr. Porter's elaborate researches on *The Flora of Pennsylvania* have now been prepared for general use; a work of 362 pages octavo, from the press of Ginn & Co., Boston. The work is illustrated by a map with keys to the orders, and full indices.

The courses in Biology are elective only, and consist of work throughout the Junior and Senior years. They are open for election to Classical, Latin Scientific, and General Scientific students. In order to meet the double purpose of a professional preparation and general culture, the courses are so arranged as to provide in each the special knowledge required without sacrificing the ends of general culture and discipline, which is sought in all the undergraduate courses. Those not wishing to take the complete course may begin their

work the first or third term of the Junior year. No one will be permitted to enter the course later than the first term of the Senior year, and those who begin the study in that year should pursue it throughout the year, as the course is continuous.

The work in this Department begins with the Junior and extends through the Senior year, one term being devoted to each of the following branches: Mammalian Anatomy, Histology, General Biology, Vertebrate Morphology, Human Anatomy and Physiology, and Embryology.

The course in Mammalian Anatomy includes the preparation and preservation of animals, both for museums and dissecting purposes, together with a comparative study of the various systems in the cat, dog, rabbit, and opossum, after the student has familiarized himself with the structure and relative location of the organs in a typical mammal. Dissections, demonstrations, drawings, recitations, and reports by the students serve not only as a valuable discipline in the use of language, manipulation, and accurate observation, but supply the investigator with a store of practical facts in logical order. Additional lectures and demonstrations are also given by the instructor.

The course in Histology is eminently practical, treating of the hardening, preserving, embedding, section cutting, and staining of all the important tissues, and giving a thorough knowledge of the use of the microscope. Each student is required to mount for permanent preservation at least fifty specimens, and to deposit with the Laboratory a sample of charts prepared from specimens

thus mounted which he has used in his demonstrations and reports before the class.

General Biology is arranged to give a concise knowledge of the lower forms of animal and plant life, including a brief survey of Bacteriology. Special attention is given to the life-history of the invertebrates and their economic relation to the human race.

Vertebrate Morphology gives an opportunity for the comparative study of the various systems and organs in the vertebrata. Amphioxus, petromyzon, carp, frog, turtle, pigeon, cat, and dog are among the forms dissected and otherwise studied. The manner of development of the animal kingdom is brought prominently before the student by specially prepared charts and diagrams.

Human Anatomy and Physiology are taught by experiments, drawings, reports, and recitations by the students, and lectures, demonstrations, and quizzes by the instructor. Actual dissection of the cadaver is not required. Instead of this, the study of the various organs of the human body preserved in alcohol, and the study of a life-size French manikin, serve to give the investigator an adequate knowledge of the structure and functions of the human organs.

In Embryology the development of the chick embryo at different stages is carefully studied. The eggs of aves, amphibia, and pisces are incubated in the laboratory, and investigated during their development. The study of Embryology is a fitting conclusion to the Biological series, as here one may see the entire history of the animal kingdom enacted in a single species.

A large laboratory, well equipped with microscopes, microtome, water baths, Koch's vegetation incubator, re-agents, numerous skeletons, &c., affords ample facilities for the above work.

Those taking the above-described course in Biology, together with the required number of hours in Chemistry, Physics, and Botany, will be given certificates admitting them to the second year's work in the Medical Department of the University of Pennsylvania and certain other medical schools.

GEOLOGY AND MINERALOGY.

Professor Peck.

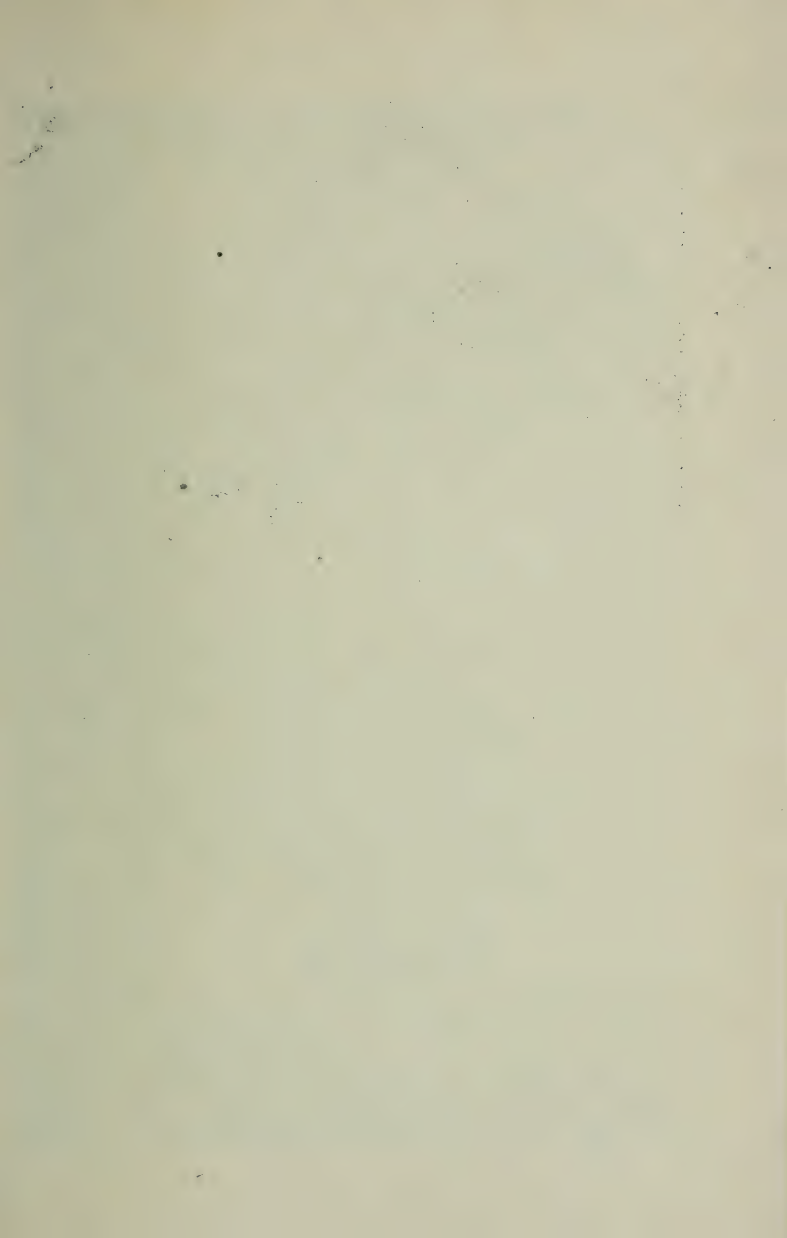
This course, which is also open to students of the General and Latin Scientific courses, begins in the third term Junior year with a brief discussion of rock-forming minerals and the way they unite to form igneous, metamorphic, and sedimentary rocks. This is a necessary preparation for the course in Geology, which continues as an elective throughout the Senior year. In this Senior elective course Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed, and the first term of the year is devoted to Dynamical, Structural, and Physiological Geology. Class-room work is supplemented by excursions into the region about Easton, which abounds in a variety of features of great geological interest.

The second term of the year is devoted to Historical Geology, during which especial attention is paid to the succession of life forms. The work of the class room is supplemented by a careful study of an excellent working

collection of fossils now in the possession of the Department.

The third term is occupied in practical field work in Geology, in mapping, and in constructing geologic sections of the region about Easton.

Among the teaching appliances of the Department may be mentioned an excellent study collection of igneous rocks, consisting of about eight hundred specimens, many of which have their corresponding thin sections for microscopic study. These are added to from time to time as opportunity affords. They are all accurately labeled. Also an equally good collection of about twelve hundred specimens, illustrating Stratigraphical Geology, all well labeled; numerous physiographical and geological maps; sixty-four large palæontological charts, made under the direction of Prof. V. Zittle, of the University of Munich; an excellent stereopticon, with about seven hundred slides, illustrating a great variety of geological and palæontological subjects; and numerous wooden, glass, and plaster models for class-room work in Geology and Mineralogy.





ASTRONOMICAL OBSERVATORY

SYNOPSIS.

CLASSICAL COURSE.

FRESHMAN YEAR.

	HOURS.
MATHEMATICS. <i>First Term.</i> —Algebra. A brief review of the requirements of admission and a continuation of the study of equations	4
<i>Second Term.</i> —Algebra, and Geometry, Plane and Solid . .	6
<i>Third Term.</i> —Algebra completed, Solid Geometry completed, Division B. Geometry, Trigonometry, Division A, . .	6
LATIN. <i>First Term.</i> —Livy: Books I. and XXI.; Latin Prose; Early Roman History, and the second Punic war	4
<i>Second Term.</i> —Horace: Odes; Prosody; Latin Prose	4
<i>Third Term.</i> —Horace: Satires and Epistles; Roman Antiquities. Throughout the year a review of Syntax and Etymology; exercises in written translation	4
GREEK. <i>First Term.</i> —Xenophon: Memorabilia; prose composition; classical geography	6
<i>Second Term.</i> —Herodotus: select passages; old Greek life .	4
<i>Third Term.</i> —Homer: The Iliad; select passages from the first six books; Greek literature	4
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible throughout the year	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations, Themes, and Forensics are required.	

NOTE.—The authors read are changed from time to time, and the passages selected for study vary frequently. Those named above are now used and give a fair idea of the work done.

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B	4
<i>Second Term.</i> —Plane Analytical Geometry, Division B. Plane and Solid Analytical Geometry, Division A	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4

LATIN. *First Term.*—Cicero: De Oratore; the subjunctive mood; Roman History from the Gracchi to the Empire . . . 4

Second Term.—Christian Latin: March's Latin Hymns; derivation and formation of words; early Roman literature 4

Third Term.—Cicero: De Officiis; Topics in the History of Philosophy 2

GREEK. *First Term.*—Homer: The Iliad; select passages from Books XVIII. to XXIV.; Homer and the Bible compared 4

Second Term.—Plato: The Apology and Crito; select passages 4

Third Term.—Aeschines against Ctesiphon 4

Throughout the year careful attention is given to the social and political history of the period suggested by the text.

ENGLISH LANGUAGE. *First Term.*—Trench: The Study of Words 2

Second Term.—Rhetoric 1

FRENCH. *Third Term.*—Grammar, Composition, and Translation of easy select passages from modern writers . . . 4

THE BIBLE.—The Greek Testament: The Book of Acts . . . 1

Throughout the year—Declamations, Themes, and Forensics.

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity 4

LATIN.—Tacitus: Agricola, and selections from the Annals. Roman Literature of the Silver Age 2

GREEK.—Demosthenes: On the Crown; History 4

GERMAN.—Grammar, Composition, and Translation from modern authors 4

THE BIBLE.—The Epistle to the Romans in Greek 1

BIOLOGY.—Elective with Latin (in connection with the History of the next term): Mammalian Anatomy 2

Second Term.

PHYSICS.—Acoustics, Optics 4

GREEK.—A play of Aeschylus or Sophocles 2

	HOURS.
ENGLISH.—Milton	} 4
ANGLO-SAXON.—Grammar and Reader (March)	
HISTORY.—Constitutional History of the United States	2
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
THE BIBLE.—The Epistle to the Romans in Greek	1
ROMANCE LANGUAGES.—Spanish or Italian, optional	2
BIOLOGY.—Histology: Elective with Greek	2

Third Term.

LATIN.—Roman Satire: Juvenal; Archæology, Roman remains	2
ENGLISH.—Shakespeare	} 4
ANGLO-SAXON	
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
LOGIC.—Jevons	2
THE BIBLE.—The Epistle to the Romans in Greek	1
Declamations, Themes, and Debates throughout the year.	
ELECTIVES.—Each student to choose two periods from the following:—	
MATHEMATICS.—Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History of the United States	2
BIOLOGY.—General Biology	4

SENIOR YEAR.

First Term.

ASTRONOMY	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.

Two to be chosen from the following:—

INTERNATIONAL LAW.—Lawrence	2
LATIN.—Lucretius	2

	HOURS.
MATHEMATICS.—The Calculus	2
GEOLOGY	2
BIOLOGY.—Vertebrate Morphology	4
BOTANY	2

Second Term.

MENTAL PHILOSOPHY.—Continued	2
THEISM.—Flint	2
POLITICAL ECONOMY.—General Principles (Walker)	2
ENGLISH LITERATURE	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.—(Each two hours.)

Three to be chosen from the following:—

BLACKSTONE.—Commentaries on the Law of England.

HEBREW.—Grammar and reading from Genesis. 4

GREEK.

FRENCH.

GERMAN.

{

The elective classes are allowed to select the authors read, so that they vary from year to year. Advanced instruction in grammar and idiom is given in all classes.

LATIN.

ASTRONOMY.

METEOROLOGY (Waldo).

CHEMISTRY.—Advanced instruction in Laboratory.

GEOLOGY.—Palæontology.

POLITICAL SCIENCE.—Elements of Jurisprudence.

CONSTITUTIONAL HISTORY.—United States (Bryce).

HISTORY.—Middle Ages.

HISTORY OF PHILOSOPHY.—Greek and Modern.

SANITARY SCIENCE.

MATHEMATICS.—Solid Analytical Geometry or Theory of Functions.

HUMAN ANATOMY and PHYSIOLOGY.—Elective four periods and substituted two periods for English Literature 6

Third Term.

HOURS.

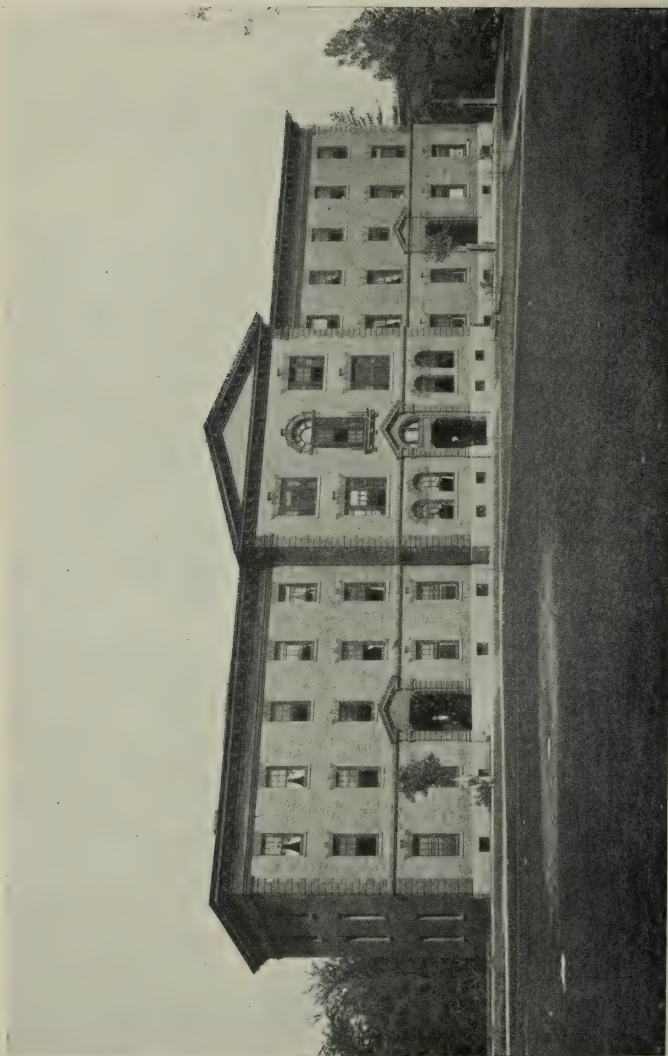
COMPARATIVE PHILOLOGY	4
HISTORY.—Lectures on the Development of European Institutions	2
PHILOSOPHY.—Problems of Philosophy (Hibben)	2
BIBLE	1
ELECTIVES.—Same as Second Term; except	
MATHEMATICS.—Solid Analytical Geometry or Elliptic Integrals	2
BIOLOGY.—Embryology	6
<i>Throughout the year—Themes and Extemporaneous Speaking.</i>	

PARDEE SCIENTIFIC DEPARTMENT.

This Department was organized in 1866, in accordance with the conditions of a gift from Ario Pardee, Esq., of Hazleton, Pa. The original organization has been from time to time greatly enlarged and extended, largely through the continued munificence of the founder. There are at present two General Courses of study, the Latin Scientific and the General Scientific, and four Technical Courses.

LATIN SCIENTIFIC COURSE.

This course, which leads to the Degree of Bachelor of Philosophy, was designed to meet the wishes of those who desire to pursue a course of liberal study, but will not study Greek. It therefore is the same as the Classical Course except that the time devoted to the study of Greek in that course is given to the pursuit of studies mainly of a scientific character, but throughout the general course of this school great importance is paid to the study of the English language under the special direction of Professor Francis A. March. In the Freshman year the substitutes for Greek are German and English Language and Composition, while in the Sophomore they are various English studies. The method of instruction in each Department is fully dealt with under the course of study in the General Scientific Course. The synopsis which follows will sufficiently explain any other peculiarities of the course.



MARTIEN, FAYERWEATHER, AND POWELL HALLS.

SYNOPSIS.

LATIN SCIENTIFIC COURSE.

FRESHMAN YEAR.

HOURS.

MATHEMATICS. <i>First Term.</i> —Algebra	4
<i>Second Term.</i> —Algebra and Geometry, Plane and Solid	6
<i>Third Term.</i> —Algebra and Geometry completed, Division B. Geometry and Trigonometry, Division A	6
LATIN. <i>First Term.</i> —Livy: Books I. and XXI. Latin Prose.	
Roman History	4
<i>Second Term.</i> —Horace: Odes; Latin Prose	4
<i>Third Term.</i> —Horace: Satires and Epistles. Roman Antiquities	4
Throughout the year a review of Syntax and Etymology and Exercises in Composition.	
ENGLISH	2
GERMAN.—Grammar and selections from contemporary prose:	
<i>First Term</i> , 4 hours; <i>Second and Third Terms</i> , 2 hours.	
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible, throughout the year	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B	4
<i>Second Term.</i> —Plane Analytical Geometry, Division B. Plane and Solid Analytical Geometry, Division A	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
LATIN. <i>First Term.</i> —Cicero: De Oratore	4
<i>Second Term.</i> —Christian Latin. March's Latin Hymns. Roman History and Literature	4
De Senectute	2
<i>Third Term.</i> —Cicero: De Officiis; Topics in the History of Philosophy	2

HOURS.

ENGLISH LANGUAGE. <i>First Term.</i> —Trench: The Study of Words (2); and Bunyan's Pilgrim's Progress (4)	6
<i>Second Term.</i> —Rhetoric (1). Spenser: The Faerie Queene (2),	3
<i>Third Term.</i> —Chaucer: The Canterbury Tales	4
FRENCH. <i>Third Term.</i> —Grammar, composition, and translation	4
THE BIBLE.—The Book of Acts. (One hour per week throughout the year)	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
LATIN.—Tacitus: Agricola and selections from the Annals. Roman Literature of the Silver Age	2
ENGLISH.—Bacon	4
GERMAN.—Grammar and Translation. (From 1903, FRENCH) .	4
THE BIBLE.—The Epistle to the Romans in German	1
BIOLOGY.—Elective, as in Classical Course: Mammalian Anatomy	2

Second Term.

PHYSICS.—Optics, Acoustics	4
ENGLISH.—Milton	} 4
ANGLO-SAXON.—Grammar and Reader (March)	
FRENCH.—Classic Authors. (From 1903 only 2 periods) . .	4
HISTORY.—Constitutional History of the United States . . .	2
THE BIBLE.—The Epistle to the Romans in German	1
CHEMISTRY.—Lectures, Text Book and Laboratory Work . . .	2

BIOLOGY.—Elective with French: Histology	2
ROMANCE LANGUAGES.—Spanish or Italian (optional)	2

Third Term.

LATIN.—Roman Satire: Juvenal and Persius	2
ENGLISH.—Shakespeare	} 4
ANGLO-SAXON	

	HOURS.
CHEMISTRY.—Lectures, Text Book and Laboratory Work . . .	2
LOGIC.—Jevons	2
FRENCH	2
THE BIBLE.—The Epistle to the Romans in German	1
ELECTIVES.—Four hours to be chosen from the following:—	
MATHEMATICS.—The Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History	2
BIOLOGY.—General Biology	4
<i>Throughout the year—Declamations, Themes, and Debates.</i>	

SENIOR YEAR.

First Term.

ASTRONOMY.—Practical Astronomy, with work in Observatory,	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.

LATIN.—Lucretius	2
MATHEMATICS.—The Calculus	2
POLITICAL SCIENCE.—International Law	2
BOTANY	2
GEOLOGY	2
BIOLOGY.—Vertebrate Morphology	4

Second Term.

MENTAL PHILOSOPHY.—Haven, Baldwin	4
THEISM.—Flint	2
ENGLISH LITERATURE	2
POLITICAL ECONOMY: The General Principles (Walker) . . .	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1
Six hours of the following <i>electives</i> are to be chosen:—	
BLACKSTONE.—Commentaries on the Law of England	2
HEBREW.—Grammar and Reading from Genesis	4

	HOURS.
FRENCH } The class is allowed to choose from a number of	
GERMAN } authors what authors they will read	2
ASTRONOMY	2
METEOROLOGY	2
CHEMISTRY.—Advanced instruction in Laboratory work . . .	2
GEOLOGY.—Palæontology	2
POLITICAL SCIENCE.—Elements of Jurisprudence	2
CONSTITUTIONAL HISTORY.—United States (Bryce)	2
HISTORY.—Middle Ages	2
HISTORY OF PHILOSOPHY.—Greek and Modern	2
MATHEMATICS.—Solid Analytical Geometry or Theory of Functions	2
SANITARY SCIENCE	2
BIOLOGY.—Human Anatomy and Physiology	6

Third Term.

COMPARATIVE PHILOLOGY	4
HISTORY.—The Development of European Institutions . . .	2
PHILOSOPHY.—Problems of Philosophy (Hibben)	2
BIBLE	1
ELECTIVES, as above, except Embryology for Human Anatomy and Physiology	6

Throughout the year—Themes, Forensics, and Debates.

GENERAL SCIENTIFIC COURSE.

This course leads to the degree of Bachelor of Science, and consists of a curriculum in which Mathematics, the Modern Languages and their Literatures, especially English, and the Natural and Physical Sciences receive principal attention. It includes, however, the more general studies of the Arts Course, such as History, Logic and Rhetoric, Mental and Moral Philosophy.

The Mathematics of this course is the same as the Mathematics of the Technical Courses. French and German are begun in the Freshman year and are pursued

with great breadth and particularity. The student's attention is directed to the study of the literatures of these languages in the endeavor to supply, so far as may be possible, the liberal culture ordinarily to be obtained only by the classical studies, but particular stress is laid upon the very thorough-going course in English, a description of which follows:—

ENGLISH LANGUAGE AND LITERATURE.

Professors Francis A. March and F. A. March, Jr.

In the Freshman Class there is, first of all, a thorough drill in Analysis, Parsing, and the Syntax of sentences. This is the basis of the future work, and a mastery of the general principles of Syntax, and skill in the solution of familiar idioms is brought constantly into requisition. Then before the more advanced work in Philology is undertaken, other languages are studied. French and German (as in the Classical Course Latin and Greek) come in as parts of the organized scheme of linguistic study, and are so pursued as to become a means of special culture in English.

Sophomores take up in the first term Trench on the Study of Words and Bunyan's Pilgrim's Progress; in connection with which English Grammar is studied. The Grammar subjects for this term are Syntax, Grammatical Equivalents, Rhetorical Forms, and Historical Elements. On each, daily recitations are heard, and the lessons learned are constantly illustrated by the text under review. The whole story of the Pilgrim's Progress is read, the allegorical meaning called for part by part, and salient doctrinal points noticed.

The staple of daily drill, however, is found in connection with the minute and careful treatment of selected passages. These are studied clause by clause and word by word. The Syntax is first made clear, then words are taken up; synonyms and phrases grammatically equivalent are brought into comparison, and the student is taught to feel an intelligent preference for one or another form of expression, as it may promote perspicuity, liveliness, or other traits of a clear and vigorous style. In the treatment of single words, also, the German and French are called for, and as far as practicable in the Scientific Course the Latin. The laws of change, the derivation, the root, the radical idea, kindred words, the primary meaning, changes in the meaning with the connection of thought, together with such other lines of inquiry as are suggested by Trench, as indications of history, character, moral suggestions, and the like; poetical forms of frequent occurrence are also specially noted, and the collocation of words discussed, both with respect to syntax and the rythmical cadences of speech.

In connection with this daily drill, the life and times of Bunyan are discussed in writing by each member of the class, and his diction compared with that of other standard works, and especially with the Bible. In this part of the work students are directed by questions and references, but are expected to look up information everywhere.

This system of daily drill on the best passages, reports on other readings, and weekly essays on topics growing out of the discussions of the life and times of the author, is found to lead the student on by sure and rapid steps to

an intelligent appreciation of the author's works, his place in literature, and on the whole to the best mastery of his genius.

The same general plan is pursued progressively through the course, with changes, from term to term, in the topics embraced in the drill.

The Sophomores (second term) read Spenser's *Faerie Queene*, with the same concentration upon representative passages, the special drill topics being derivation, romance of chivalry, and Spenserian stanza. In the third term Chaucer (*Canterbury Tales*) is the basis of work. Several of the tales are read and discussed, but the famous Prologue is the special subject of study and philological drill. All the results of previous works are kept constantly in review. This is an emphatic feature of the method. "A line of questions once begun is always kept up." The special drill topics this term are Phonetic Elements, Orthographic Elements, a review of Historical Elements, and Criticism of Uncertain Text.

The Juniors (first term) take for philological study selected essays of Bacon; they prepare reports and criticisms of others of his works, and of his character, life, and times, in weekly written papers. During the second term they study Anglo-Saxon. They also read Milton's *Paradise Lost*. The Classical, Latin Scientific, and General Scientific Juniors here recite together (as they do in all subsequent Anglo-Saxon and English studies of the course). The philological study is mainly directed to the deduction of English words and forms from Anglo-Saxon. The paradigms and the text read are examined word by word in this view. Special objective points are

Poetical Forms and Epic Art. In the third term Anglo-Saxon is continued, and Shakespeare's play of Julius Cæsar is read. The philological study is used mainly to clear up, enrich, and impress the thoughts of Shakespeare. The characters and the structure of the play are studied. Weekly written papers are required from each student upon selected topics connected with Shakespeare's life and times, his genius, his dramatic art, and the like.

In the Senior year the first term is given to a rapid and general survey of English literature by means of a compendium and class discussions, and conversations. In the second term a representative work of a representative author, selected by the professor, is studied with a view to more extended researches in philology and criticism, and to one elaborate essay by each member of the class, to be handed in at the close of the term. What is known as the F. A. March Prize is awarded on the basis of this term's work. During the third term, Senior year, Professor Whitney's Lectures on Language are studied. The work of the entire course in Comparative Philology is reviewed and co-ordinated, and advanced work pursued by means of lectures and class discussions.

HISTORY.

The President and Mr. Roberts.

In this course, a course in the Introduction to the Middle Ages (Emerson) and the History of the Middle Ages, with special reference to the development of European institutions, is given in the third term of Sophomore year.



JENKS BIOLOGICAL LABORATORY.

All the courses in History and Political Science described under the Classical Course are also open to students of this Department.

SYNOPSIS.

GENERAL SCIENTIFIC COURSE.

FRESHMAN YEAR.

	HOURS.
MATHEMATICS.—Algebra, Trigonometry, Mensuration, and Analytical Geometry	4-5-5
ENGLISH.—March's Method. Grammar	2
FRENCH.—Grammar, composition and translation. (Third term)	2
GERMAN.—Grammar, composition and translation	2
CHEMISTRY.—Text-book, Lecture, and Laboratory work in Elementary and Organic Chemistry. (Four hours first term, two hours second and third terms)	4-2-2
DRAWING.—Industrial Drawing. (<i>Each Term.</i>)	2
THE BIBLE.—Old Testament in English and Coleman's Geography of the Bible. (One hour throughout the year.)	1
HYGIENE.—Lectures.	
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Analytical Geometry and Differential Calculus	4
<i>Second Term.</i> —Differential and Integral Calculus	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
ENGLISH. <i>First Term.</i> —Trench on the Study of Words.	
Bunyan: The Pilgrim's Progress	6
<i>Second Term.</i> —Rhetoric. Spenser: The Faerie Queene	3
<i>Third Term.</i> —Chaucer: Canterbury Tales	4
FRENCH AND GERMAN.—Language and literature	4
HISTORY.—Middle Ages	2
THE BIBLE.—The Acts of the Apostles in French	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

	HOURS.
PHYSICS.—Heat, Electricity, Magnetism, Optics, Acoustics. <i>First and Second Terms</i>	4
ENGLISH.—Bacon, Milton, and Shakespeare. (Four hours per week throughout the year)	4
ANGLO-SAXON.—March's Grammar and Reader. (Four hours per week second and third terms)	4
FRENCH AND GERMAN. (Two hours per week each throughout the year)	2
LOGIC.—Jevons	2
BIOLOGY. <i>First Term</i> .—Mammalian Anatomy	4
HISTORY.—Constitution of the United States. (Second term) .	2
THE BIBLE.—New Testament Epistles in German	1

ELECTIVES.

MATHEMATICS.—Calculus	4
HISTORY. <i>Third Term</i>	2
GEOLOGY. <i>Third Term</i>	4
BIOLOGY:—	
<i>Second Term</i> .—Histology (with French)	2
<i>Third Term</i> .—General Biology	4

SENIOR YEAR.

ASTRONOMY.—Practical and Theoretical. (First term)	2
MENTAL PHILOSOPHY. <i>First and Second Terms</i>	4
MORAL PHILOSOPHY AND THEISM	2
COMPARATIVE PHILOLOGY. <i>Third Term</i>	4
POLITICAL ECONOMY. <i>Second Term</i> (Walker)	2
MODERN LANGUAGES AND LITERATURES. (Throughout the year.)	4
BIBLE	1
ELECTIVES, as in the Latin Scientific Course.	

Throughout the year—Themes and Extemporaneous Speaking.

DEPARTMENT OF ENGINEERING.

There are at present embraced in the curriculum three courses in ENGINEERING : Those of Civil, Mining, and Electrical Engineering. The location of the College is peculiarly favorable for such engineering schools. The city of Easton is a centre of railroads and canals, while bridges, foundries, pipe works for water and gas, cement works, rolling mills, repair shops, and many other industrial works are near at hand. Mines of iron, anthracite coal, and zinc are easily accessible, and extensive quarries of limestone, steatite, and slate are to be found in the immediate vicinity, and afford excellent opportunities for the study of mining operations. The demand, created by the great number of mechanical works in connection with these natural conditions and their development, for special trained chemists has led to the establishment of a special course in CHEMISTRY.

COURSES OF INSTRUCTION.

The instruction in all the engineering courses is substantially the same during the first two years of the course, except that the electrical engineers substitute the study of physics and practical work in the physical laboratory for a part of the surveying, field, and office work of the other courses.

The following branches are common to all the courses :—

MATHEMATICS.

Professor Hall and Messrs. Brasefield, Fellers, Reichard, and Dickinson

The attention of applicants for admission to technical courses is called particularly to the necessity of thorough

preparation in Mathematics. All candidates should be thoroughly grounded in fundamental principles and operations, and it is strongly recommended that the Preparatory Mathematics be carefully reviewed just prior to entrance. Readiness and accuracy is required not only in demonstrating propositions, but also in solving problems.

Those who are prepared in the additional Algebra requirement and in Plane Trigonometry, may, after a satisfactory examination, join an advanced division of the class. The Advanced Algebra will be required in 1903 and Plane Trigonometry in 1905.

While the study of Mathematics as mental discipline will not be overlooked, the object will always be to give the student that working knowledge of the subject that will enable him to apply, accurately and readily, mathematical principles to the solution of engineering problems.

Higher Algebra, Plane and Spherical Trigonometry, Logarithms, Mensuration, and Plane Analytical Geometry are given in the Freshman year. The following subjects are given in the Sophomore year: Analytical Geometry of three dimensions, Differential and Integral Calculus, Differential Equations, and Least Squares.

ASTRONOMY.

In addition to a course in General Astronomy similar to that of the Classical Course, the Civil Engineers are given a course in Practical Astronomy. This course keeps constantly in mind the needs of the Engineer. It includes a careful study of the Transformation of Astronomical Co-ordinates, a short discussion of Parallax and

Refraction, a careful discussion of the construction, adjustment, and use of Astronomical Instruments, of the methods of determining Time and Latitude by means of the Sextant, of Time by the Transit Instrument, of the methods of determining Longitude, and of the methods of determining Latitude by the Zenith Telescope. The students are required to make frequent observations with the Sextant and Transit Instrument.

SURVEYING.

Professor Folwell.

For Drawing, Laboratory, and Field work an "hour" consists of three hours; for other studies, of one hour.

This course, progressive and practical, is as follows:—

FRESHMAN YEAR.

	HOURS.
<i>Third Term.</i> Lectures and Recitations	1
Summer School of Surveying. (In vacation) .	Three weeks.

SOPHOMORE YEAR.

	HOURS.
<i>First Term.</i> Lectures, Recitations, Field and Office Work. Theory of Chain, Compass, and Transit Surveying; Leveling; Adjustment and Use of Surveying Instruments	2
<i>Second Term.</i> Lectures, Recitations, and Office Work. Pen and Colored Topography; Location and Construction of Roads, Streets, and Pavements .	2
<i>Third Term.</i> Lectures, Recitations, Field and Office Work. Topographical Surveying; Map of Survey; Notes; Railroad Surveying	2
Summer School of Surveying. (In vacation) .	Three weeks.

JUNIOR YEAR.

HOURS.

<i>First Term.</i>	Lectures, Recitations, Field and Office Work. Railroad Reconnoissance and Location . . .	3
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SENIOR YEAR.

<i>Third Term.</i>	Geodesy ; Lectures, Recitations, Field and Office Work	2
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DRAWING.

Professor Hall and Messrs. Brasfield and Feters.

Instruction in the Elements of Mechanical Drawing includes the use and testing of drawing instruments and materials, the drawing of lines, pen tinting and shading, flat tinting with brush, and wet and dry shading in ink and in colors, free-hand pen shading; plans of buildings, instrumental copying, traced copying, and transfer of drawings, blue prints, and working drawings.

In addition to text-book exercises, free-hand sketches and mechanical drawings in ordinary orthographic, isometric, and clinographic projections are made from models constructed for this purpose.

The drawing for the first two years is arranged as follows :—

FRESHMAN YEAR.

<i>First Term.</i>	Elements of Mechanical Drawing. Plane Problems. Free-hand Lettering.
<i>Second Term.</i>	Elementary Projections. Working Drawings.
<i>Third Term.</i>	Projections, including Shades and Shadows. Iso- metric and Cabinet Projections. Model Drawing. Sketching.

SOPHOMORE YEAR.

- First Term.* Descriptive Geometry. Plates.
Plotting Surveys.
- Second Term.* Descriptive Geometry. Plates.
Pen and Colored Topography.
- Third Term.* Machine Drawing.
Map of Survey.

All the students in the Engineering, Chemical, and General Scientific Departments take the first year's work in Drawing, as shown above. All the students in the Engineering Departments take the second year's course. During the Junior and Senior years the drawing in the Technical Departments includes the following: Maps of Surveys, Graphic Statics, Constructions in Stone Cutting, Bridge Drawing, and graphical methods of locating faulted beds and veins.

MINERALOGY AND GEOLOGY.

Professor Peck.

Students in the Technical Courses begin work in this Department the first term Junior year, and complete it the second term Senior year, with the exception of the students in the Mining Engineering course, who continue through the third term of the Senior year, taking the regular field work required of the Senior classicals, and in addition a short course in the geology of ore deposits, consisting of one lecture per week.

The first term Junior year is devoted to Crystallography, in which Elements of Crystallography, by G. H. Williams, is used as a text book. The course is supplemented abundantly by laboratory practice.

The second term's work consists in a systematic review of mineral species, more especial attention being paid to their chemical and crystallographic relations and to their mode of occurrence in Nature. Instruction is given by lectures, which are illustrated by a study collection, consisting of some two thousand specimens, including the most important species.

The third term's work consists in a discussion of mineral aggregates, or how minerals combine to form igneous, metamorphic, and sedimentary rocks, which discussion is in direct preparation for the work in Geology which follows in the Senior year.

The Department has a large projecting apparatus to be used in demonstrating before a class the optical properties of the rock-forming minerals by means of polarized light, to which there is also a large microscope attachment for use in projecting upon a screen thin sections of rocks for the purpose of showing their structure and mineralogical composition. Also five reflecting goniometers, with horizontal circle and of the most recent pattern, have been purchased, to be used by the more advanced students in the technical courses in determining the geometrical constants of crystals; and a new and improved polariscope to be used in the study of crystal optics. (All of the above instruments were made by Fuess, in Berlin.) Four petrographical microscopes are also in the possession of the Department, and instruction will be given to the more advanced students in modern petrographical methods, *i. e.*, in the preparing and mounting of thin sections for study with the microscope.

The course in Mineralogy of the Junior year is fol-

lowed in the Senior year by a course in the elements of Geology, in which Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed. The first term is devoted to Dynamical, Structural, and Physiographical, and the second term to Historical, Geology.

Students pursuing the course in Mining Engineering will, in the third term Senior year, take field work with the classical elective division, and will be given also a short course, consisting of one lecture per week, in the geology of ore deposits.

The text-book in the Technical Courses is Williams' *Crystallography*. Crystallography is taught with the aid of two hundred and fifty models in wood. Instruments are provided for the study of the optical properties of minerals. There is also a mineral dresser, a lathe run by electricity, and all the apparatus for the preparation, mounting, and microscopical study of thin mineral and rock sections.

CHEMISTRY.

Professor Hart and Messrs. Turrentine and Bryden.

The study in this Department begins with a course of lectures in General Chemistry. A text-book is used and daily recitations are held. Each student is required to work in the Laboratory.

In the Mining Engineering and Electrical Engineering Courses this course is followed in the Junior and Senior years by courses in qualitative and quantitative analysis. Special attention is given to the analysis of engineering materials. The modern quick methods are thoroughly taught, theoretically and practically.

Partial or special students may enter the Laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

PHYSICS.

Professor Moore.

The studies in this Department in all the courses at present occupy four recitations or lectures a week, beginning with the third term, Sophomore year, and continuing through the first and second terms of the Junior year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments.

In other subjects text-book study is accompanied with illustrative lectures, aided by apparatus which is continually enlarged and improved.

To the students of the Technical Courses an optional course in Laboratory Physics is offered. Experiments in mechanics, sound, heat, electricity, magnetism, and light are performed by the student, thus illustrating and emphasizing the principles of each respective subject.

For the advanced studies of the Technical Courses in Analytical Mechanics and other topics of Mechanical Engineering see pages 71 and 78.

In Physics, as well as in Astronomy, Chemistry, Engineering, and Natural History, the studies are illustrated by wall charts, twelve hundred in all, many of which give illustrations not otherwise easily accessible to students.

HISTORY AND POLITICAL ECONOMY.

The Juniors pursue a course in the History of the Constitution of the United States for one term, and the Seniors a course in Political Economy for one term. (*Vide* pages 23 and 25.)

RHETORIC AND ELOCUTION.

Prof. F. A. March, Jr.

Besides the study of text-books, weekly written essays are required, and declamations in class or before the College. *Extemporaneous Speaking* is also cultivated. In those studies, such as Mental Philosophy, in which the recitation can be had by topics, students are required to take the floor daily and present an outline of the author's thought, with such additions as they choose in the form of a lecture to the class. Extemporaneous (unwritten) debates are also had in class. The Juniors, during the third term, and the Seniors deliver unwritten addresses on subjects of their own choice, instead of selected declamations. The other classes speak selected pieces. Great pains are taken to encourage the habit of simple and earnest communication of connected thought. For the training in these branches to be had in the College Literary Societies, see page 118.

A Thesis is required in all the Technical Departments as a condition of graduation. It must show evidence of original investigation upon a subject appropriate to the Department and approved by the professor in charge. It must be neatly written upon regulation paper, bound and illustrated with such photographs, drawings, and sketches as may be needed. It will be prepared during

the latter part of the Senior year, and an opportunity will be given at the close of the course to read and defend the same before a public audience. These Theses, accompanied by their drawings, photographs, &c., if accepted, become the property of the College, and are deposited in the Libraries of the various Departments.

DEPARTMENT OF CIVIL ENGINEERING.

Professors Porter and Folwell, and Messrs. Brasefield and Fetters.

The design of this course is to furnish such theoretical instruction and engineering practice as will prepare its graduates for immediate usefulness in the field and office, and, after a moderate amount of professional experience, enable them to fill positions of trust and importance in their chosen profession.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the field, laboratory, and drafting-room. Theoretical principles are illustrated and explained by such problems and examples, taken as far as possible from actual engineering practice, as will best serve the purpose. In addition to the regular lectures, occasional ones are given by prominent engineers, in active practice, upon their specialties.

During the course visits are made to engineering structures, mills, &c., in connection with their special study. During the Senior year a tour of inspection is made of the prominent industries not otherwise accessible.

FACILITIES FOR INSTRUCTION.

The Department has a large equipment of instruments necessary for the various branches of engineering field

practice, including chains, tapes, compasses, plane-tables, transits, levels, barometers, base-rods, standard base-line tapes and pulling apparatus, sextants, solar compasses, solar attachments for transits, floats, and current meters. A twelve-inch portable altitude and azimuth instrument of the latest and best form, from Fauth & Co., Washington, D. C., is used for instruction in Geodesy and Practical Astronomy. It is read by micrometer microscopes to single seconds, both of altitude and of azimuth, and is provided with level for double zenith distances. A precision level of the latest design is employed in instruction in precise leveling. The astronomical observatory contains an equatorial telescope, transit, an astronomical clock, meteorological instruments, &c.

For use in the lecture-room there are numerous models of the various types of bridges and roofs, several complete sets of full-weight sections of I and deck beams, channels, Z bars, angles, Phoenix and Keystone Columns, and the standard built sections; five foot section of a full weight plate girder, numerous full-weight sections of riveted joints, representing bridge and boiler work, hand and power riveting; sections of steel rails for railroads and street railways, cable slots, &c.; drawings, photographs of engineering structures when completed and during construction; slide rules and other calculating machines.

The Department also has a full-weight pin-connected highway bridge of fifty feet span and fourteen feet roadway, weighing twelve tons, together with all false work and tools necessary to erect the same.

The main Testing Laboratory is thirty feet by sixty

feet in dimensions, well lighted, and contains an Olsen and a Riehle Automatic Machine of one hundred thousand pounds capacity, arranged for tension, compressive, and transverse testing; a sixty-thousand pound Hydraulic Machine, a four-thousand pound wire tester, and a smaller machine for testing cord, twine, &c.; a transverse machine for specimens up to five feet in length, and provided with micrometers for measuring deflection; a torsion machine; a rattler for abrasion test of paving brick; improved elongation meters, and numerous smaller micrometers. The power for the laboratory is furnished by a ten-horse power electric motor.

The Cement Laboratory contains two two-thousand and one one-thousand pound machine for testing cement by tensile, compressive, or transverse stress; a machine for moulding briquettes under pressure, and a power-driven Boehme Hammer; a jig; a boiler for boiling tests; large immersion tanks, with running water, and the necessary moulds, sieves, scales, moist closets, &c. The power for this laboratory is furnished by a three-horse power electric motor.

The Hydraulic Laboratory contains a large vertical tank arranged for making experiments on the flow of water through orifices and nozzles under heads up to three hundred feet, as well as several tanks for use under low heads; three tanks, two of them thirty feet long, for weir experiments; a turbine, Backus wheel, and other water motors; a Venturi meter, a measuring tank of a capacity of four thousand gallons, a smaller one of three hundred gallons, scales, and other appliances for measuring the water used in experiments, as well as arrange-

ments for testing meters, nozzles, and fire hydrants, and for lecture-room illustrations. There is also connected with the laboratory a one-million gallon Worthington duplex pump. The laboratory is connected with a large cistern by four lines of sewer pipe of different sizes, each three hundred feet long, and arranged for making tests of joints and various experiments on flow of water.

The shop, which is in charge of a skilled mechanic, contains an engine lathe, drill press, a planer, a mineral lathe and saw, and the other necessary appliances for preparing test specimens, models, and apparatus, and for repair work.

The Library contains a number of the best and latest books and periodicals upon Engineering subjects, and students are encouraged to make free use of the same.

SPECIAL STUDIES.

The first two years of the course are spent in laying a foundation of pure mathematics, drafting, surveying, chemistry, and modern languages. The last two years are devoted to the more purely professional work, which may be divided as follows:—

SURVEYING.—The theoretical study of surveying extends over four terms, the field practice being confined almost entirely to the Summer School in Surveying. This school became a required part of the course with the year of 1901–02. The course in surveying includes land surveying, leveling, topography, hydrography, triangulation, railroad reconnoissance and location, and the elements of geodesy. Particular attention is given to have the students become rapid and at the same time accurate instrument men, to be able to handle a corps advantageously, to keep neat and systematic notes, and make a clear and correct map. No error is allowed in the field or map which is not within the limits observed in current practice.

ANALYTICAL MECHANICS is taught by means of lectures and recitations, treating upon forces, their composition and resolution, conditions of equilibrium, centre of gravity, moment of inertia,

theory of motion, momentum, impact, energy, and friction; solution of numerous problems.

RESISTANCE OF MATERIALS.—This subject is treated by means of lectures, text-books, and laboratory practice sufficient to thoroughly fix in the mind the principles of stress and strain, the behavior of materials under tension, compression and shearing stresses, resistance of pipes and riveted joints, strength and flexure of simple, cantilever, restrained, and continuous beams variously loaded; formulas for columns, torsion, shafts; working-strengths and fatigue of materials; designing of rolled and built beams, shafts, and columns according to standard specifications. Visits are made in connection with this course to pipe and boiler works.

MATERIALS OF CONSTRUCTION.—This course is to familiarize the student with the qualities, requirements, method of testing, preserving, and cost of material used in engineering structures. In connection with this course, visits are made to blast furnaces, rolling and wire mills, quarries, and cement works.

BRIDGES AND ROOFS.—This course includes the computation of stresses in the various forms of trusses by both analytical and graphical methods. Following this, each student designs a plate-girder, and then a pin-connected bridge, according to standard specifications, making full computations, working-drawings, bill of material, and estimate of cost for same; special attention being given to an economical design, and to joints and other details. Actual practice is given by the erection each year by the students of a full-weight, pin-connected bridge belonging to the Department. Visits are made to bridges, and their details and general design are criticised, upon which written reports are made.

HYDRAULICS.—This subject is treated by recitations and laboratory work, embracing the study of head, velocity, and discharge through orifices, tubes, pipes, canals, and rivers; measurement of water-power; testing hydraulic motors.

MUNICIPAL ENGINEERING, which is preceded by a course in Bacteriology, is taught by lectures and recitations, supplemented by practice in designing. It covers the supplying of water, and construction of reservoirs, stand-pipes, and pumping plants; the purification of water, and its distribution through mains and appurtenances; methods of collecting sewage, both dry and water-carried, and of disposing of this and of garbage, including determining the

size and capacity of sewers, mains, laterals, inlets, flush tanks, &c.; cleaning and lighting streets; drainage and ventilation of buildings; estimates and specifications. In connection with this study, frequent visits are made for the purpose of inspecting existing works, completed and under course of construction. Each student is required to design a system of distribution or sewerage for some imaginary town, making complete maps, bill of material, and detailed estimate of cost.

RAILROAD ENGINEERING.—The work in railroad engineering includes the mathematical discussion of curves, frogs, switches, and crossings; economical locations as to grades and curves; calculation of earthwork; designing of trestles, culverts and other structures; discussion of the properties and shapes of materials used in construction. The field practice consists of a reconnoissance and location of a line upon such ground as will best illustrate the problems occurring in actual practice, making a complete map, and designing such details as drains, culverts, road-crossings, &c., calculating earthwork; complete set of notes of all work done in field and office; estimating cost, including equipment.

MASONRY CONSTRUCTION.—This course treats of the requisites of stone, brick, and cement; practice in the testing of these materials; the method of preparing mortar and concrete; strength of stone and brick masonry, foundations, dams, retaining walls, bridge piers and abutments; culverts and arches; study of existing structures; specifications and cost.

ROADS, STREETS, AND PAVEMENTS.—This course comprises the reconnoissance, location, construction, and maintenance of towns and country roads, city streets, and pavements; tramways and street railways; details of construction; street cleaning; testing the quality of road material; specifications; estimates.

ASTRONOMY is taught by means of text-books and lectures accompanied by practice in the field and observatory. The practical work includes the use and adjustment of instruments, and the determination of time, latitude, longitude, and azimuth.

GEODESY.—This course includes the study of the instruments and the methods employed in measuring base lines, establishing stations, measuring angles, reducing triangulations, projecting maps, &c.

MACHINERY.—This course includes the theoretical principles of the steam-engine and other prime movers. Examinations and

reports are made upon the power plants of some of the manufacturing establishments of the city, and upon locomotives, elevators, and cranes. The student is made familiar with the use of the steam indicator, planimeter, and speed indicator, and has practice in interpreting indicator diagrams.

The Department invites its friends and students to send specimens of materials, drawings, models, or photographs of bridges, machinery, or other engineering works. Illustrated circulars and price lists are also desired. Such contributions will be labeled with the donor's name and placed on exhibition, and when possible used in the work of the Department.

SYNOPSIS.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR.

First Term.

	HOURS.*
MATHEMATICS.—Algebra (Wentworth)	4
CHEMISTRY.—Lectures and Recitations (Hart)	4
MODERN LANGUAGES.—German Grammar, Composition, and Translation, 2; English, 2	4
DRAWING.—Elements of Industrial Drawing; Plane Problems, 2	2
HYGIENE.—Lectures on Health	1
THE BIBLE	1

Second Term.

MATHEMATICS.—Trigonometry (Crockett's)	5
CHEMISTRY.—Lectures and Laboratory Practice	2
MODERN LANGUAGES.—French, 2; German, 2; English, 2	6
DRAWING.—Projections; Plates; Free-hand Lettering	2
THE BIBLE	1

Third Term.

MATHEMATICS.—Spherical Trigonometry and Analytical Ge- ometry (Wentworth); Mensuration (Hall)	5
MODERN LANGUAGES.—French (continued), 2; German (con- tinued), 2; English, 2	6
DRAWING.—Projections (Model Drawing); Plates	2
SURVEYING.—Instruments and their use	1
CHEMISTRY	2
THE BIBLE	1

Throughout the year—Themes.

SUMMER SCHOOL OF SURVEYING. (In vacation.) . . . Three weeks.

* An "hour" indicates one hour of recitation or an equivalent period of three hours of field or laboratory work.

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytical Geometry (Bowser), Differential Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	2
MODERN LANGUAGES.—French, 2; German, 2; English: Trench on Words, 2	6
SURVEYING.—Lectures, Recitations, Field and Office Work. City and Mine Surveying; Leveling; Map of Survey; Notes; Location and Construction of Roads, Streets, and Pavements	2
CHEMISTRY	2
THE BIBLE	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	3
MODERN LANGUAGES.—German, 2; French, 2; Rhetoric, 1	5
DRAWING—SURVEYING.—Pen and Colored Topography	2
ANALYTICAL CHEMISTRY	2
THE BIBLE	1

Third Term.

MATHEMATICS.—Least Squares and Differential Equations	5
MECHANICS.—Elementary Mechanics (Moore)	4
DESCRIPTIVE GEOMETRY	2
CHEMISTRY.—Lectures and laboratory	2
SURVEYING.—Lectures, Recitations, Field and Office Work. Topographical Surveying; Survey of a small area; Map of Survey; Railroad Surveying	2
THE BIBLE	1

SUMMER SCHOOL OF SURVEYING (in vacation) . . . Three weeks.

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
APPLIED MECHANICS	4
CHEMISTRY.—Metallurgy of Iron and Steel	2

HOURS.

MINERALOGY.—Crystallography	2
RAILROADS.—Lectures, Recitations, Field and Office Work. Railroad Reconnoissance, Location and Construction . . .	3
THE BIBLE	1

Second Term.

MECHANICS.—Theory and Conditions of Equilibrium. Centre of Gravity. Moment of Inertia. Solution of Problems . . .	4
PHYSICS.—Acoustics; Optics	4
MINERALOGY.—Descriptive	2
RESISTANCE OF MATERIALS	3
ELECTRIC RAILWAYS	2
RAILROADS.—Locating, Designing and Estimating Quantities .	2
THE BIBLE	1

Third Term.

MACHINERY.—Steam Engine, Elevators, Cranes. Lectures and Text-book	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory	4
SURVEYING.—Lectures and Recitations. Railroad Economics; Field Work; Topographical Surveying	2
MINERALOGY	3
BACTERIOLOGY	2
THE BIBLE	1
THEMES.	

SUMMER SCHOOL OF SURVEYING (in vacation) . . . Three weeks.

SENIOR YEAR.

First Term.

BRIDGES AND ROOFS.—Theory and Calculation of Stresses in Simple Trusses by Analytical and Graphical Methods. Designing of a Roof-truss	6
HYDRAULICS.—Theory of Hydrostatics. Efflux of Water from Orifices and Tubes. Weirs. Flow in Pipes, Canals, and Rivers. Hydraulic Motors. Laboratory Work	5
GEOLOGY	2

	HOURS.
ASTRONOMY.—Descriptive Astronomy. Text-book and Lectures	2
BIBLE	1

Second Term.

BRIDGES.—Theory and Calculation of Stresses in Continuous, Cantilever, and Suspension Bridges by Analytical and Graphical Methods. Designing of Plate-girders and Riveted Bridges, with Working Drawings. Estimates and Contracts	6
MUNICIPAL ENGINEERING. WATER SUPPLY.—Source and Supply of Water for Towns. Designing, Construction, and Maintenance of Systems	3
MASONRY CONSTRUCTION.—Testing Laboratory	2
GEOLOGY.—Historic and Dynamic. Text-book and Lectures	2
ASTRONOMY.—Practical Astronomy. Observatory-Work	2
POLITICAL ECONOMY	2
BIBLE	1

Third Term.

BRIDGES.—Design of a Pin-connected Bridge, with Working Drawings. Bill of Material. Estimates and Contracts	6
MUNICIPAL ENGINEERING; SANITARY.—Designing, Construction, and Maintenance of Sewerage Systems. Sewage Disposal. Drainage, Ventilation, and Heating of Buildings. Street Cleaning and Garbage Disposal	5
SURVEYING.—Field and Office Work. Precise Triangulation and Leveling. Elements of Geodesy	2
DRAWING.—Bridge Drawing. Maps. Law of contracts	2
ERECTION.—Designing of False Work, and Erecting of Bridges. Practice in Erecting a Full-weight Pin-connected Bridge.	
THESIS for Graduation.	
BIBLE	1

MINING ENGINEERING DEPARTMENT.

Professor Hall and Messrs. Brasefield and Fetters.

The aim of the course in Mining Engineering, leading to the Degree of Engineer of Mines, is to provide a good education; to lay in a thorough manner a sound foundation in Engineering, and to give special preparation in Mining, Geology, Chemistry, Metallurgy, and Assaying.

The courses in Surveying, Analytical Mechanics, Resistance of Materials, Materials of Construction, and Railroad Engineering are given in the Civil Engineering Department, and have been fully described.

The courses in Mathematics, Languages, Physics, and Pure Graphics are the same in all the Engineering Departments, and have been presented.

A course in the Theory of Steam Engineering is followed by Graphical Constructions and Computations.

In Mechanical Engineering, after the courses in Analytical Mechanics, Resistance of Materials, Materials of Construction, and Graphic Statics, a term of Machine Design and Construction is given.

In Surveying, the theory and practice extends through the first three years, and includes: Chain, Compass, and Transit Surveying; Adjustment of Instruments; Leveling; City Surveying; Location and Construction of Roads, Streets, and Pavements; Topographical Surveys; Railroad Reconnoissance, Location, and Construction, with Profile Plans, Earthwork Calculations, Bills of Material, Estimates, Specifications, and Contracts; Theory of Mine Surveying, and the actual survey of a mine.

Following the course in Electricity as given in Physics, two periods each week for one term are devoted to the

study of Electrical Machinery with selected laboratory work, having especial reference to the application of electricity to mining operations.

The course in Drawing includes: Elements of Mechanical Drawing, tracings and blue prints; Free-Hand Drawing and Lettering; Descriptive Geometry; Topographical Drawing; Graphic Statics; Map Drawing; Machine Drawing and Design. Additional drawing is also required in connection with mining problems.

The work in Chemistry begins with the first term of the Freshman year, and continues, without any break, for two and one-half years. Lectures and text-book study are accompanied by recitations and laboratory practice.

Metallurgy is given in two terms, and embraces the metallurgy of iron, steel, gold, silver, copper, lead, zinc, &c. Thorough courses are also given in Assaying and Blowpiping.

Particular stress is laid on a thorough course in English, which extends over the first two years. The course includes the study of Rhetoric. Both German and French are studied each term for the first two years. Two periods each week for one term are devoted to the study of Political Economy, and the same length of time is given to the study of the Constitution of the United States. A theme written on some assigned technical subject is required of the student each term.

In addition to the courses in Mineralogy and Geology, as previously explained, the mining engineers are given a course of two hours each week for one term in the study of Ore Deposits, and a course of the same length is given in Economic Geology. Instruction in the class

room will be supplemented, so far as possible, by a study of the different kinds of ore, and of the "country rock" in which they occur. A special course in the modern methods of determining rocks in thin sections by means of the polarizing microscope, with instruction in the proper methods of preparing and mounting the sections, will be offered; and practice in the ordinary methods of field work in geology, with the mapping and sectioning of a certain region, will be given.

The course in Mining proper begins with the Theory of Mine Surveying and the solution of problems for determining the position of faulted ore bodies. Then follows Prospecting for ore deposits in lodes, beds, and placers; Prospecting for magnetite with the magnetic needle, and borings for water, oil, and gas. The study of Rope, Rod, and Diamond Drill Boring is followed by that of Blasting and Excavation. In this connection the various tools, machines, and explosives are studied, together with their application in Blasting and Quarrying. Shaft Sinking, Shaft Boring, and Tunneling are studied, together with the materials for the support of excavated spaces and the methods of their application. While all the methods of Exploitation are investigated, particular attention is given to the mining of soft ore bodies, and of anthracite and bituminous coal. In the treatment of Haulage and Winding, special consideration is also given to the requirements of coal mining. Prominence is given to the study of Ventilation and Lighting because of their great importance in coal mining. The subject of Drainage receives careful treatment. Mining Law is studied with reference to locations on public lands, and also with

reference to the prevention of mine accidents. The Mechanical Separation of Ores is studied, and designs and reviews of Special Mining Operations are made. The principles involved in determining the values of Mines and Quarries are discussed.

The Mining Engineering students use a separate room as a study. This is provided with an excellent Mining Library, and is supplied with the leading Mining periodicals. By the aid of a topical index, the library is regularly used in the study of the subjects assigned. The student is in this way led to many original sources for information, and becomes acquainted with the prominent works on Mining.

Magnetite, hematite, and limonite iron mines are close at hand, and the anthracite coal mines and zinc mines are easily accessible; these, with extensive quarries of slate, limestone, steatite, granite, serpentine, and sandstone in the vicinity, offer excellent opportunities for the study of mining and quarrying operations.

The Ingersoll-Sergeant Drill Company, one of the largest manufacturers of mine machinery in the world, is located at Easton. This gives the Mining students the opportunity of seeing the construction of important mine machinery and of testing the machines.

Frequent visits are made to the mines and quarries in the vicinity, and two weeks in the spring vacation are spent at some prominent mining region in the practice of Mine Surveying and in the study of Practical Mining. Students are advised to spend one long summer vacation during their course in actual work at the mines.

The spring trip of 1902 was taken to the bituminous

regions of Western Pennsylvania. A survey was made in a mine at Brownsville and several other mines were inspected. Important engineering plants in the Pittsburg region were visited, among which were the Homestead Steel Works, National Tube Works at McKeesport, Pennsylvania Car Shops at Altoona, American Bridge Company's Works and Westinghouse Electric Manufacturing Company's plant.

Attendance at one session of the Summer School of Surveying is required of the Mining Engineering students, and attendance at the second session is strongly recommended.

SYNOPSIS.

MINING ENGINEERING COURSE.

The Freshman year the same as in Civil Engineering. (See page 74.)

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytical Geometry and Differential Calculus (Hall)	5
DRAWING.—Descriptive Geometry (Hall)	2
FRENCH AND GERMAN	4
ENGLISH.—Trench: The Study of Words	2
SURVEYING.—Lectures, Recitations, and Laboratory. Theory of Chain, Compass, and Transit Surveying; Construction, Adjustment, and Use of Instruments	2
CHEMISTRY.—Lectures and Laboratory	2
THE BIBLE.—The Acts of the Apostles, in French	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
DRAWING.—Descriptive Geometry (Hall)	3
MODERN LANGUAGES.—German, 2; French, 2	4
SURVEYING.—Drawing. Pen and Colored Topography	2
CHEMISTRY.—Lectures and Laboratory Practice	2
ENGLISH.—Rhetoric	1
THE BIBLE.—The Acts of the Apostles, in French	1

Third Term.

	HOURS.
MATHEMATICS.—Integral Calculus (Hall), Differential Equations, and Least Squares	5
MECHANICS.—Elementary Mechanics	4
DRAWING.—Sketches and Working Drawings of Machines, with tracings and blue prints	2
SURVEYING.—Field and Office Work. Land and Mine Surveying. Computing Areas. Map of Survey	2
CHEMISTRY.—Lectures and Laboratory	1
BLOWPIPING	1
THE BIBLE.—The Acts of the Apostles, in French	1
<i>Throughout the year.—Themes.</i>	
SUMMER SCHOOL OF SURVEYING (in vacation) . . .	Three weeks.

JUNIOR YEAR.

First Term.

	HOURS.
MECHANICS.—Theory and Conditions of Equilibrium, Centre of Gravity, Moment of Inertia, Solution of Problems . .	4
PHYSICS.—Heat, Magnetism, and Electricity	4
SURVEYING.—Lectures, Recitations, Field and Office Work. Topographical Survey and Leveling. Map of Survey .	3
MINERALOGY.—Crystallography	2
CHEMISTRY.—Quantitative Analysis	2
THE BIBLE.—New Testament Epistles, in German	1

Second Term.

APPLIED MECHANICS	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory	3
PHYSICS.—Acoustics. Optics	4
RAILROAD ENGINEERING	2
SPANISH (Optional)	2
CONSTITUTION OF THE UNITED STATES	2
MINING	2
MINERALOGY.—Descriptive Mineralogy	2
THE BIBLE	1
MINING.—Practical Work in the Mines in the Spring Vacation.	

Third Term.

	HOURS.
RESISTANCE OF MATERIALS.—Testing Laboratory	4
STEAM ENGINEERING	4
MINERALOGY.—Determinative	3
MINE ENGINEERING	2
RAILROAD ENGINEERING	2
THE BIBLE	1
MINING.—Map of Mine Survey. <i>Throughout the year.</i> —Themes.	

SENIOR YEAR.

First Term.

HYDRAULICS.—Theory of Hydrostatics. Flow of Water in Pipes, Canals, and Rivers. Weirs. Efflux of Water from Orifices and Tubes. Hydraulics. Motors	5
MECHANICAL ENGINEERING	2
METALLURGY	2
GEOLOGY	2
MINING.—Prospecting, Deep Boring, Blasting and Quarrying,	4
BIBLICAL STUDY	1

Second Term.

METALLURGY	2
GEOLOGY	2
ASSAYING	4
POLITICAL ECONOMY	2
MINING.—Shaft Sinking, Tunneling, Exploitation, Haulage, and Winding	5
BIBLICAL STUDY	1

Third Term.

FIELD GEOLOGY	2
ECONOMIC GEOLOGY.—Lectures, Recitations, and Field Work .	2
ELECTRICAL ENGINEERING.—Electric Lighting and Electric Mine Machinery	2
MINING.—Ventilation, Drainage, Mechanical Separation of Ores. Designs for and Reviews of Special Mining Op- erations	9
BIBLICAL STUDY	1
GRADUATION THESIS.	

COURSE IN ELECTRICAL ENGINEERING.

Professor Moore and Mr. Dickinson.

This course was organized in response to an earnest demand from students who sought opportunities of study in this department of science. It is parallel to the other technical courses, and differs from them in substituting the study of Physics, especially Magnetism and Electricity, for the strictly professional portions of the other courses.

The Sophomore year is the same as that of the civil engineers, except that two periods per week are given to work in the Physical Laboratory, amounting to six hours' actual laboratory work. In the Junior and Senior years about one-half of the time of the students is given to special work in electricity and kindred subjects.

Graduates in the Department of Electrical Engineering receive the Degree of Electrical Engineer.

The laboratories are large and well arranged.

The *General Laboratory of Physics* is thirty by sixty feet in dimensions, well lighted and convenient. The ceiling is high, and ample wall space is provided for permanent pieces of apparatus. Gas, electricity, compressed air, etc., are close at hand.

The main *Electrical Laboratory* is also thirty by sixty feet in dimensions. This room is fitted up with all the appliances required in such a laboratory. The dynamo collection consists of representative types of continuous and alternating current generators and motors, lamp banks, water rheostats, brakes, etc.; and the necessary instruments are supplied for loading and testing motors and generators.

A transformer collection to show the representative American types is being made.

The laboratory is supplied from the Edison Illuminating Company's station with continuous currents at one hundred and ten and two hundred and twenty volts, and with alternating current at sixty frequency. Other pressures can be obtained from generators in the laboratory; and alternating and polyphase currents of other frequencies can be generated at will by means of alternators and rotary converters. Galvanometers of all kinds, batteries, commercial testing instruments, etc., are in constant use.

The *Testing Laboratory* is twenty-five feet long by twenty-one feet wide. It contains the necessary delicate instruments for testing, among which are a Thomson Quadrant Electrometer, a Thomson Reflecting Astatic Galvanometer, Tripod Galvanometers, Resistance Boxes, Ballistic Galvanometers, Condensers, etc.

The *Photometric Laboratory* or *Dark Room* is twenty-three feet square. It is papered with dead black paper, is high and well ventilated. It contains apparatus for the determination of the illuminating power of various illuminants. It is well supplied with gas meters, wet and dry, and with apparatus for making measurements of the illuminating power of electric lamps. Photographic apparatus, for scientific purposes, is used in this laboratory.

The *Spectroscopic Laboratory* is twenty-five feet long by twenty-one feet wide. It contains spectroscopes of the best makers. This room is also used as the Microscopic Laboratory. The Department is well supplied with microscopes.

The *Shop* contains a seven horse power Otto gas engine, besides a fifteen and a twenty horse power electric motor. There are lathes, emery wheels, and the other usual appliances of a repair shop.

The *Apparatus Room* is stocked with the latest and best instruments.

The *Lecture Room* is large, well lighted, and supplied with all the conveniences for table experiments. Steam, compressed air, gas, electricity, and sunlight are very carefully arranged for.

In addition to the dynamos and motors owned by the College, the students have access to the Edison and municipal plants and to the finely equipped electric railways of the city.

The *Physical and Electrical Library* is well stocked with the standard works on electrical and other subjects, and is kept up to the times by the constant addition of foreign and home periodicals. The latest advances in physical science are announced to the classes, and reports, written and oral, are made by the students upon them. The Library, in connection with the Laboratory, is regarded as an exceedingly important instrument of instruction.

The studies of the Freshman year are the same as in the Civil Engineering Course. (See page 74.)

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytical Geometry and Differential Calculus	5
DESCRIPTIVE GEOMETRY (Hall)	2
MODERN LANGUAGES.—French	2
German	2
English (Trench on The Study of Words)	2

	HOURS.
PHYSICS.—Laboratory. Method of Physical Measurements (Moore)	2
CHEMISTRY	2
THE BIBLE	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall) . . .	5
DESCRIPTIVE GEOMETRY (Hall)	3
MODERN LANGUAGES.—French, 2; German, 2; Rhetoric, 1 . . .	5
PHYSICS.—Laboratory. Statics. Hydrostatics	2
CHEMISTRY.—Laboratory	2
THE BIBLE	1

Third Term.

MECHANICS.—Elements of Mechanics (Moore)	4
MATHEMATICS.—Integral Calculus (Hall), Differential Equations, and Least Squares	5
DRAWING	2
CHEMISTRY	2
PHYSICS.—Laboratory. Heat	2
THE BIBLE	1

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Electricity. Lectures and Recitations . . .	4
PHYSICAL LABORATORY.—Electricity	2
ELEMENTS OF MECHANISM	2
APPLIED MECHANICS	4
DRAWING.—Descriptive Geometry	4
MINERALOGY	2
THE BIBLE	1

Second Term.

APPLIED MECHANICS	4
RESISTANCE OF MATERIALS	3
PHYSICS.—Acoustics. Optics. Lectures and Recitations . . .	4
ELECTRICAL ENGINEERING	2
PHYSICAL LABORATORY.—Electrical Measurements	2
UNITED STATES CONSTITUTION	2
THE BIBLE	1

Third Term.

	HOURS.
ELECTRICAL ENGINEERING.—Dynamo Electric Machinery . . .	2
Laboratory	2
RESISTANCE OF MATERIALS	3
STEAM ENGINE	4
MINERALOGY	3
THE BIBLE	1
THEMES.	

SENIOR YEAR.

First Term.

ELECTRICAL ENGINEERING.—Dynamo Electric Machinery . . .	6
Laboratory. Electrical Testing	2
HYDRAULICS	5
DRAWING.—Machine Designing and Drawing	2
THE BIBLE	1

Second Term.

ELECTRICAL ENGINEERING.—Alternating Currents	6
Electric Transmission	3
The Electric Telegraph	1
Laboratory	3
POLITICAL ECONOMY	2
THE BIBLE	1

Third Term.

ELECTRICAL ENGINEERING.—Alternating Current Machinery . .	6
The Electric Railroad	3
The Telephone	2
Laboratory—Electrical Testing	2
Designs for and Reviews of Electrical Engineering Works.	
HISTORY	2
THE BIBLE	1
THESIS.	

Each term throughout the course—Elocution.

NOTE.—Laboratory work, as herein stated in "hours," represents three hours of actual work, the "hour" indicating a "period" of that length.

COURSE IN CHEMISTRY.

Professor Hart and Messrs. Turrentine and Bryden.

The aim of this course is to fit young men for practical work in chemistry, either as chemists in iron and steel works, in manufacturing establishments, or as chemical manufacturers. Great attention is paid to analytical chemistry, and especially to the chemistry of cement and the chemistry and metallurgy of iron and steel. Graduates are fitted to take paid positions as chemists immediately upon graduation. For men of the proper character immediate and remunerative employment can be secured.

This course will also be found an excellent preparation for the study of medicine.

While the instruction centres in the two branches of

CHEMISTRY AND METALLURGY,

the course aims to supply a thorough education along the lines most necessary for a successful career as a responsible chemist. The same instruction in the Bible, in Mathematics, Physics, the Natural Sciences, English, French, and German, which is required in the ENGINEERING COURSES, is required here, as will be seen in the synopsis. The study begins with a course of lectures on General Chemistry. In connection with these lectures each student is required to work in the Laboratory. A text book is used and regular recitations are held. Following the course in General Chemistry comes a thorough drill in Qualitative Analysis in connection with frequent recitations. The beginner is encouraged to work out and use

methods of separation not laid down in the book. A thorough drill in chemical arithmetic forms part of this course.

During the Freshman year a course in Organic Chemistry is given, followed by a course in Theoretical Chemistry and a review of the Organic Chemistry. Instruction in these subjects is given by means of lectures, recitations, and laboratory work in the preparation of selected compounds.

Thorough courses are also given in Volumetric Analysis, Assaying, Metallurgy, and Technology. The course in Metallurgy has been greatly enlarged and improved. A large part of the time is now spent in the laboratory, which has a new equipment. There are optional courses during Junior year in Blowing and Grinding Glass, and in the reading of German in Scientific Text.

During Senior year the student is required to carry on an investigation upon some chemical subject, and to write a thesis giving the results of his work. He is thus thrown entirely upon his own resources, and the training secured is invaluable as a preparation for work after leaving college.

In Quantitative Analysis accuracy is insisted on as the first requisite, and slovenly work is discouraged in every possible way. The following substances are analyzed:—

IRON in Iron Wire.

LIMESTONE (Silica, Iron, Alumina and Phosphoric Acid, Lime, Magnesia, Carbon Dioxide).

LIMONITE.—Complete Analysis.

CEMENT.—Analysis.

BLAST-FURNACE CINDER.—Silica.

COAL.—Moisture, Volatile, Coke, Ash, Sulphur, Phosphorus.

PIG IRON.—Silicon, Phosphorus, Carbon (combined and graphitic), Sulphur.

SPIEGELEISEN.—Manganese.

TITANIFEROUS IRON ORE.—Titanic Acid.

COPPER ORE.—Copper by Battery.

ZINC ORE.—Zinc, Manganese.

COMMERCIAL FERTILIZERS.—Potash, Nitrogen, Phosphoric Acid, soluble, insoluble, and total.

WATER ANALYSIS.—Total Solids, Chlorine, Sulphates, Free and Albuminoid Ammonia, Nitrates and Nitrites.

GAS ANALYSIS.—Carbon Monoxide and Dioxide, Hydrogen, and Methane.

MINERAL OIL in Lubricating Oil, Fire and Flash Tests, Gravity and Viscosity.

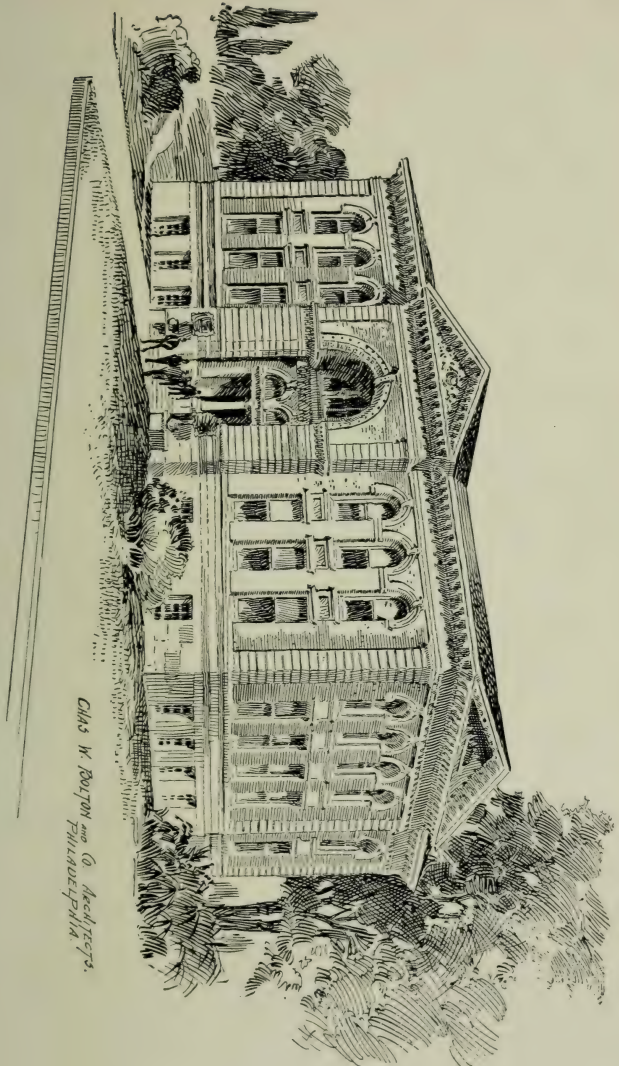
ELEMENTARY ORGANIC ANALYSIS.

Students who are looking forward to the study of Medicine after graduation are allowed to substitute work in Toxicology for a part of the work laid down above.

Partial or special students may enter the laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

This department is now housed in Gayley Hall, a fine new fire-proof building erected especially for it by James Gayley, of the Board of Trustees. This building contains four large and several smaller laboratories, lecture rooms, quiz room, assay laboratory, metallurgical laboratory, crystallizing and gas analysis rooms.

Large additions have been made to the equipment within the past year. The assay room contains two new Burlingame furnaces. The metallurgical laboratory con-



GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY

CHAS W BOLTON and G. NEEDLETT'S,
PHILADELPHIA.

tains a full shop equipment, grinding machinery and electrical furnaces for roasting ores at uniform temperatures. There is also an electric pyrometer for testing the heat treatment of metals. Throughout the different laboratories no expense or pains have been spared to bring them into harmony with the best current practice. A course of lectures, mostly by graduates of the departments now engaged in practical work, is given annually in the lecture room of Gayley Hall.

The Henry W. Oliver Chemical and Metallurgical Library has a separate room in this building, and is open to students during study hours and on Monday, Tuesday, Thursday and Friday evenings from seven to ten o'clock. This library was endowed by Henry W. Oliver, of Pittsburg. The collection of chemical books formerly belonging to the college has been added to it by vote of the Trustees and considerable additions are annually made by purchase and gifts. In 1901 a complete and very beautiful set of the *Berichte der Deutschen Chemischen Gesellschaft* and numerous single volumes and dictionaries were acquired.

A friend of the College has bought and presented to the Henry W. Oliver Chemical and Metallurgical Library all the pamphlets, about 3,000 in number, belonging to the library of the late Prof. Johannes Wislicenus, of the University of Leipsic.

This library represents the collection of fifty years of great activity, and will be a great addition to the Oliver Library. This library now contains about 1,500 volumes.

In addition, the students have access to Professor Hart's private chemical library, embracing about one thousand

volumes. These libraries contain full sets of the *American Journal of Science*, *Dingler's Polytechnisches Journal*, *Wagner's Jahresbericht*, *Journal of the Society of Chemical Industry*, *Fresenius Zeitschrift*, *American Chemical Journal*, *The Journal of The American Chemical Society*, *Zeitschrift für Angewandte Chemie*, *Zeitschrift für Anorganische Chemie*, *Zeitschrift für Physikalische Chemie*, *Berichte der Deutschen Chemischen Gesellschaft*, and nearly complete sets of *Liebig's Annalen*, *Annales de Chimie*, and partial sets of the *Comptes Rendus*, *Bulletin de la Société Chimique*, *Journal für Praktische Chemie*, *Chemical News*, *Journal of the Chemical Society*, *Chemisches Centralblatt*, and many dictionaries and special works upon Chemistry.

SYNOPSIS.

CHEMICAL COURSE.

FRESHMAN YEAR.

	<i>First Term.</i>	HOURS.
MATHEMATICS.—Algebra		4
CHEMISTRY.—Lectures and Recitations (Hart)		4
MODERN LANGUAGES.—German Grammar and Translations		2
English		2
DRAWING.—Elements of Industrial Drawing; Plane Problems,		2
HYGIENE.—Lectures		1
THE BIBLE.—Old Testament		1

Second Term.

MATHEMATICS.—Plane Trigonometry	5
CHEMISTRY.—Lecture and Laboratory Practice	2
MODERN LANGUAGES.—German (2), French (2), English (2),	6
DRAWING.—Projections	2
THE BIBLE.—Old Testament	1

Third Term.

	HOURS.
MATHEMATICS.—Spherical Trigonometry (Wentworth); Mensuration (Hall), Plane Analytic Geometry	5
CHEMISTRY	2
MODERN LANGUAGES.—French (2), German (2), English (2)	6
DRAWING.—Projections. Model Drawing. Plotting Surveys	2
THE BIBLE.—New Testament	1

Throughout the year—Themes and written Translations into English from French and German.

SOPHOMORE YEAR.

First Term.

	HOURS.
MATHEMATICS.—Analytic Geometry; Differential Calculus (Hall)	5
DESCRIPTIVE GEOMETRY	2
CHEMISTRY	4
MODERN LANGUAGES.—French (2), German (2)	4
English (Trench)	2
THE BIBLE.—The Acts, in French	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
ANALYTICAL CHEMISTRY	4
MODERN LANGUAGES.—German (2), French (2)	4
English, Rhetoric	1
THE BIBLE.—The Acts	1

Third Term.

MECHANICS.—Elements of Mechanics (Moore)	4
ANALYTICAL CHEMISTRY.—Laboratory	10
BOTANY.—Field work (6 hours per week)	2
THE BIBLE.—The Acts	1

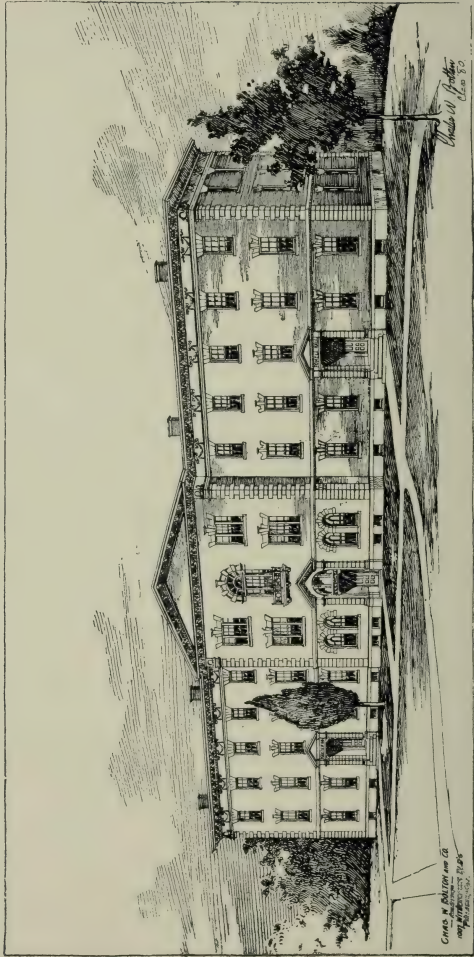
Throughout the year—Declamations and Themes.

JUNIOR YEAR.

	HOURS.
PHYSICS.—Heat, Electricity, Magnetism, Optics, and Acoustics. (First two terms)	4
CHEMISTRY.—Theoretical and Practical, including Qualitative and Quantitative Analysis, and Laboratory work in Or- ganic Chemistry, and in Assaying. (8 hours first and second terms; 12 hours third term)	8-12
GEOLOGY.—General and Economic. (Third term)	4
THE BIBLE.—New Testament Epistles, in German	1
<i>Throughout the year</i> —Declamations and Themes.	

SENIOR YEAR.

CHEMISTRY.—Advanced work in all departments of Chemis- try, Metallurgy, Chemical Technology, with special work in some selected department. (14 hours first term; 12 hours second term; 14 hours third term)	12-14
POLITICAL ECONOMY.—General Principles. (Second term)	2
HISTORY.—Lectures on the development of European institu- tions. (Third term)	2
THE BIBLE.—History and Evidences	1
<i>Throughout the year</i> —Themes and Extemporaneous Speaking.	
Practice in the preparation of Chemical theses.	



Charles W. Burtin
Class '80

BLAIR, KNOX, AND NEWKIRK HALLS.

GENERAL INFORMATION.

ATTENDANCE.

Attendance on all College exercises is strictly required. Absences on account of sickness, or for other satisfactory cause, may be excused, and leave of absence will be granted at the request of parents when absolutely necessary. In such cases the absence is excused, but the student is invariably required to make up such work as he may lose by reason of his absence. Reports are sent to parents whenever the absences of their sons exceed a reasonable number. In case of the absences becoming excessive, the Faculty will punish the neglect with suspension. Absences incurred at the beginning and end of terms, especially if they involve absence from examinations, and immediately preceding and succeeding holidays, are regarded with especial disapproval and under ordinary circumstances will not be excused.

Each student is expected to have sixteen recitations each week. Three hours of field or laboratory work are regarded as equivalent to one recitation period. The regular gymnasium drills are also regarded as required exercises so far as prescribed. No student is permitted to take a course involving fewer hours of recitation without a special vote of the Faculty.

EXAMINATIONS.

Examinations are held at the close of each term on the studies of that term, and may be either written or oral, or both, at the option of the professor in charge. In addition to these regular examinations, partial examina-

tions and written recitations are held from time to time during the term, with or without notice to the students. Failure to attend an examination, except for reasons of absolute necessity, is regarded as a serious delinquency, and will be dealt with according to the circumstances of each case.

STANDING.

The scholarship of students is determined by the results of the examinations and daily recitations combined.

Students entering with conditions are required to make them up before the end of the term next after that in which they enter.

Students failing to pass in any studies of any term are required to make up such studies before the end of the next term, and they may be specially directed to do so at an earlier date. Students who do not comply with these regulations will be put on probation in scholarship, or lose standing and be only "permitted to recite," or be dropped into the next lower class, as the Faculty may, in each case, decide.

Reports of the standing of the students are made to their parents or guardians at the end of each term.

RULES GOVERNING ABSENCES AND RE-EXAMINATIONS.

1. No absence from a recitation, a lecture, or a laboratory exercise shall be excused.
2. If the number of a student's absences in any term from the exercises in any subject exceeds the number of

exercises per week in the subject, but not double the number, he may, at the discretion of the teacher in charge, be debarred from the term examination in the subject, provided the number of absences is not less than three.

If he is debarred, he must pass on the subject before the first day of the next term or repeat the subject with a following class.

3. If the number of a student's absences in any term from any subject exceeds double the number of exercises per week in the subject, he must repeat the subject with a following class, provided that the number of such absences must exceed three.

4. If, for special reasons, the head of the department recommends it, the Faculty may vote that a student who would otherwise be required to repeat a subject by Rule 3 be given one examination on the subject. If he fails in this examination, he must repeat the subject.

5. Before a student may take the examination provided for in Rule 4, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the teacher in charge of the examination.

6. The teacher in charge of each subject shall, at the beginning of each week, post in some place easily accessible to the students interested, the number of absences from the exercises of the subject of each student to date.

7. All absences shall be reported weekly to the Clerk of the Faculty, who shall record them.

8. When the number of a student's unexcused and unpermitted absences from the religious and other exercises of the College reaches five, he shall be warned by his class dean; when it reaches ten, he shall be again warned; when it reaches fifteen, he and his parents shall be warned that he is in danger of being dropped from the College rolls; when it reaches twenty, he shall be dropped.

PERMITTED ABSENCES.

9. In case of absence due to prolonged sickness or request from home for urgent reasons approved by the class dean, the student shall, as soon after the absence as possible, present to his dean a written statement of the cause of his absence, after which the dean shall give the student an exact statement of the duration of his absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then take it to the Clerk of the Faculty, and the absences indorsed upon it shall not be counted by the Clerk in making up the number of Rule 8.

When such permitted absence causes the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done by the class during as many of these absences as are required to bring his absences below the debarring number by an examination, to be held within a month of the absences.

If he fail in this examination, he shall be debarred from the term examination and required to pass on the subject

by a special examination to be held before the first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars, and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

10. When permission to be absent from town has been given to a student by vote of the Faculty or by the President acting for the Faculty, such student shall receive from the Clerk of the Faculty an exact statement of the duration of such absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then return it to the Clerk of the Faculty and the absences indorsed upon it shall not be counted by the Clerk in making up the numbers of Rule 8.

When such permitted absences shall cause the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done during as many of these absences as are necessary to bring his absences below the debarring number by an examination held within a month of the absence.

If he fail in this examination he shall be debarred from the term examination and required to pass on the subject by a special examination to be held before the

first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

11. If professors, in whose departments a student has the majority of his hours per week, report to the Faculty that the student is neglecting his work, he and his parents shall be warned that he is in danger of being dropped from the college rolls. If a second such report be made, he shall be dropped.

RE-EXAMINATIONS.

1. A student who fails at the regular term examination, in any subject, shall be entitled to one re-examination.

2. If, for special reasons, the head of the department recommend it, the Faculty may vote that a student who has failed in the re-examination provided for in Rule 1 may be given a second re-examination.

3. Before a student can take the second re-examination provided for in Rule 2, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the instructor in charge of the examination.

4. If, at the beginning of the college year, a student has failed to pass on his conditions of the preceding year in the Departments of Mathematics, Mechanics, Physics—he shall be required to repeat the subjects in which he is still conditioned.

5. When subjects, which closely depend upon each other, are continued through successive terms, the department interested may require that all conditions of any term in those subjects shall be made up within two weeks from the beginning of the next term, in order that the student may go on with those subjects.

GRADUATION.

Students who have pursued the entire course as prescribed and have successfully passed their examinations are recommended to the Trustees for the first academic degree in course. Such recommendations are ordinarily acted upon and the degrees are conferred at Commencement, at which time the students receive diplomas from the President of the College. At Commencement the Faculty award such honors as it sees fit to those who are to receive degrees. These honors ordinarily consist of a valedictory oration, a Latin salutatory, and other honorary orations and theses.

COMMENCEMENT.

The third Wednesday in June and the three days immediately preceding it are set apart for the exercises in connection with the annual Commencement. On Sunday,

the first of these days, a Baccalaureate sermon is preached in the College Chapel at eleven o'clock in the morning; and in the evening a sermon is preached in the auditorium of Pardee Hall before the Brainerd Society of the College by some distinguished minister selected by the Society.

The preacher for 1903 was Rev. Thomas Dale Logan, D. D., '69, of Springfield, Ill.

On Monday the Senior Class holds its Class Day exercises on the campus.

On Class Day, 1903, the graduating class presented to the College a memorial gateway, placed at the entrance of the March Athletic Field, facing the Sullivan Road. It is built of granite, on plans prepared by the architect, Charles W. Bolton, '80, of Philadelphia. The structure is one hundred feet long, twelve feet high, and eighteen inches thick. It embraces a centre gateway for vehicles, two ticket offices surmounted by turrets, two side gates for pedestrians, and is an ornament to that part of the College grounds. It cost about one thousand dollars. It was formally presented by the class on June 16th, 1903.

The Alumni and Literary Societies hold their reunions on Tuesday, and orations are delivered before the respective societies in the Society Halls. The annual address before the Alumni in 1902 was delivered by James Whitfield Wood, Esq., '66, of Easton, with informal addresses by several representatives of reunion classes.

The regular Commencement exercises are held in the auditorium of Pardee Hall on Wednesday morning, the afternoon being occupied by the Alumni dinner. All

these exercises are open to the public, who are cordially urged to be present. Various other exercises of an athletic or social nature are conducted on the part of the students under a general supervision by the Faculty.

DEGREES.

THE FIRST DEGREE.—The degree of *Bachelor of Arts* is conferred on the graduates of the Classical Course; *Bachelor of Philosophy*, on those of the Latin Scientific Course; *Bachelor of Science*, on those of the General Scientific Course; *Bachelor of Science* (in Chemistry), on those of the Chemical Course; *Civil Engineer*, on those of the Civil Engineering Course; *Engineer of Mines*, on those of the Mining Engineering Course; *Electrical Engineer*, on those of the Electrical Engineering Course.

MASTER'S DEGREE.

MASTER OF ARTS.—The degree of *Master of Arts* may be conferred one year after graduation on any *Bachelor of Arts* who has pursued a prescribed course of study, equivalent to sixteen recitations per week during one year in residence, passed the examinations, and presented a satisfactory thesis.

The same degree may be conferred two years after graduation on any *Bachelor of Arts* who shall have devoted at least one year exclusively to advanced study under the direction of the Faculty, passed examinations in the studies pursued, and presented a satisfactory thesis.

Candidates for this degree must in all cases register on or before October 1st, and examinations must be held at the College at least once in each College term. Theses must be presented for approval not later than May 1st. A registration fee of \$5 and tuition fee of \$100 per annum for residents, and \$45 per annum for non-residents, is exacted of all graduate students.

MASTER OF SCIENCE.—The degree of *Master of Science* may be conferred upon any graduate of the Scientific Department upon conditions similar to those prescribed for the degree of Master of Arts.

DOCTOR OF PHILOSOPHY AND OF LETTERS.

The degree of *Doctor of Philosophy* may be conferred three years after graduation on any college graduate who, during three years of continuous residence at the College, shall have devoted himself exclusively to advanced studies under the direction of the Faculty, passed examinations in them, and presented a satisfactory thesis. The candidate must designate three branches of study which he desires to pursue, each in a different department, one major or principal study, and two minor studies.

The regulations governing registration, examination, theses, and fees are the same as for the Master's degree.

Any graduate of a recognized college may be permitted to pursue graduate studies under the direction of the professors in the various departments upon satisfactory evidence of his fitness to do so. No curriculum is prescribed for such students. A course of study is usually arranged after consultation which will meet the specific object each student has in view.

CERTIFICATES.

Students who have been admitted to any department of the College, and have passed satisfactory examinations therein, may obtain certificates of the work which they have done if they have been in attendance not less than one year.

RELIGIOUS INSTRUCTION.

The aim of Lafayette College is distinctly religious. Under the general direction of the Synod of Pennsylvania of the Presbyterian Church its instruction is in full sympathy with the doctrines of that body. At the same time religious instruction is carried on with a view to a broad and general development of Christian manhood within the lines of general acceptance among evangelical Christians, the points of agreement, rather than those of disagreement, being dwelt upon.

Prayers are held each morning in the Chapel at 7.50 and religious services in the Chapel Sunday mornings at 11 o'clock. All students are expected to attend these services. No exceptions will be made to this rule for morning prayers. Where there is some exceptional reason assigned by the parents, students will be permitted to attend one of the churches in Easton instead of the Sunday morning service. This permission will only be granted on request of parents and for sufficient reason.

Special sermons are preached before the College from time to time by distinguished ministers. The preachers for 1903 were Rev. Benjamin L. Agnew, D. D., LL. D., Philadelphia; Rev. M. H. Anderson, Germantown; Rev. Arthur J. Brown, D. D., New York City; Rev. C. E. Burns, D. D., '73, Manayunk; Rev. J. C. Chapman, Hackettstown, N. J.; Rev. Mervin J. Eckels, D. D., '77, Philadelphia; Rev. Edsall Ferrier, D. D., '54, LL. D., Rev. Henry Forman, D. D., Etah, India; Rev. John Fox, D. D., '72, New York; Rev. J. W. Gilland, D. D., '77, Shamokin; Rev. George F. Greene, D. D., Cranford, N. J.; Rev. E. B. Hodge, D. D., Philadelphia; Rev. S. C. Hodge, Tunkhannock; Rev. E. V. King, D. D., Paterson, N. J.; Rev. J. B. Laird, '92, Frankford, Philadelphia; Rev. Thomas D. Logan, D. D. '69, Springfield, Ill.; Rev. Samuel A. Martin, D. D., '77, Canonsburg; Rev. James Moore, '93, Weatherly; Rev. Wallace Radcliffe, D. D., LL. D., Washington, D. C.; Rev. Charles Schall, Easton; Rev. W. A. Shedd, Persia; Rev. John Balcom Shaw, D. D., '85, New York City; Rev. D. W. Woods, Gettysburg.

The preacher for the Day of Prayer for Colleges, 1904, is Rev. J. Ross Stevenson, D. D., New York.

Instruction in the Bible has always held a prominent place in the College, and a full account of the courses in Bible study will be found on page 17.

LECTURES.

Special courses of lectures are given annually in connection with several departments and will be found under those departments. A more general course of a popular character is given each year.

Among those who have given lectures during the year 1903 are: Prof. Eugene C. Foster, '93, Washington, D. C.; William H. Nichols, N. Y.; T. J. Parker, New York City; C. F. McKenna, New York City; Dr. H. W. Wiley, U. S. Department of Agriculture; Prof. D. S. Hartline, '97, Bloomsburg.

TERMS AND VACATIONS.

The College year is divided into three terms, with intervening vacations, as given in the Calendar on page 5. All the classes are examined at the close of each term, and a report sent to the parent or guardian. Students are required to be present punctually at the beginning of each term, and are not allowed during term-time to be absent from town, except by written permission from the President.

The Wednesday after the 20th of October in each year is observed as Founders' Day, in memory of those who founded the College and of those who have since

contributed to its usefulness. On Founders' Day, 1903, an address was delivered by Rev. James M. Ludlow, D. D., L. H. D., pastor of First Presbyterian Church, East Orange, N. J.

BUILDINGS. LABORATORIES. LIBRARIES.

The College grounds are situated upon the summit of a beautiful hill, overlooking the city of Easton. They are reached by a flight of stone steps, which ascend the bold front of the hill directly from the head of Third Street, or by electric cars, which skirt the face of the hill by a gradual incline. At the head of the steps stands the monument erected by the Alumni Association to their comrades who "died for the Union." The grounds contain about forty acres, terraced and laid out under the direction of Donald G. Mitchell. The buildings upon the campus are thirty in number. The oldest of these is

SOUTH COLLEGE.

The central portion of this structure is the original College building, erected in 1833. It contains a number of lecture-rooms, "Brainerd Hall," the home of the Christian Association of the College, and a number of dormitory rooms. Two wings have been added to the original building, which contains the College Chapel and lecture-rooms for the English, Latin, and Greek Departments and the laboratory of the Biological Department. A new pipe organ, the gift of the Class of 1874, and an electric chandelier, the gift of the Class of 1900, were placed in the College Chapel in 1900.

THE VAN WICKLE MEMORIAL LIBRARY.

The Van Wickle Library was dedicated on May 30th, 1900. It has given to the College one of the most needed additions to its equipment. A beautiful building of Pompeian brick and terra cotta, thoroughly furnished with the most approved appliances for library work, it is at once a most beautiful and useful feature in the College's development. It contains a large reading room, in which the periodicals and books of most constant reference are to be found; a reference book department; a large room for the general storage of the Library; Librarian's room, and small rooms for special work. Mrs. Van Wickle has placed in the reading room a memorial window, executed by Tiffany & Co., representing Sir Philip Sidney at the Siege of Zutphen.

PARDEE HALL.

The most commanding position on the campus is occupied by this building, the most conspicuous evidence of the liberality of the late Ario Pardee, which reached to every department of the College. Here the departments of Civil, Mining, and Electrical Engineering are supplied with thoroughly-equipped laboratories and lecture-rooms, and the museums of these departments, and of General Geology, Mineralogy, and Natural History, are to be found. The Ward Library and the handsome rooms of the two Literary Societies are also in this building, and the central portion of the second and third floors of the main building contains a beautiful auditorium, in which the Commencement exercises, lectures, and other public entertainments are held.

JENKS BIOLOGICAL HALL.

This building was erected in 1864-5 by the late Barton H. Jenks, of Philadelphia. It was for a long time devoted to the work of the Chemical Department. During the past year, however, it has been entirely remodeled in its interior to adapt it to the uses of the Biological Department.

THE GAYLEY LABORATORY OF CHEMISTRY AND
METALLURGY,

Completed in 1902, is occupied by the departments of Chemistry and Metallurgy. The building consists of three stories, and is constructed of Indiana stone, Colonial brick, and gray terra cotta. It is fireproof, with steel and cement floors, and gives a thoroughly modern equipment to these departments. This building contains also the Henry W. Oliver Chemical and Metallurgical Library.

THE ASTRONOMICAL OBSERVATORY,

In addition to the observatory proper, contains a lecture-room, with accommodations for the students in Astronomy.

WEST COLLEGE

Contains the lecture-room of Dr. Francis A. March and the offices of the Registrar and Treasurer of the College.

THE GYMNASIUM,

which has already been sufficiently described on page 19, contains a complete equipment for physical training.

THE DORMITORIES.

A complete reorganization of the dormitory system was effected in the summer of 1900 by the building of central structures, known as Knox and Fayerweather Halls, to connect Blair and Newkirk Halls and Martien and Powell Halls respectively, and the facing of the completed buildings with mottled Pompeian brick, handsomely trimmed with red terra cotta. The architectural beauty of the buildings is in marked contrast with the former appearance of the separate buildings. These halls are connected with McKeen Hall in a common steam plant. A complete sanitary plumbing system of baths, sinks, closets, and electric lights have been installed in all the buildings. These improvements leave nothing to be desired for the health and comfort of the students.

INFIRMARY.

A building on the extreme northeast corner of the campus, facing upon McCartney Street, is set apart for the use of sick students, thus securing quiet and complete isolation in case of the occurrence of any contagious disease.

This building is intended solely for the use of students rooming in the College buildings.

BRAINERD HALL.

A building for the Y. M. C. A., the gift of J. Renwick Hogg, Esq., '78, of the Board of Trustees, was completed and dedicated on October 22d, 1902. It is a three-story gray stone building in the Tudor Gothic style. It contains a large room for the meetings of the society, and



BRAINERD HALL,

Erected for the College Y. M. C. A., 1902, by James Renwick Hogg, '78

reading, writing, and committee rooms; also a trophy room for the Athletic Association, a room for the collection of curios from foreign missionary fields, and bowling alleys in the basement.

Its object is to afford a home under active Christian influences for all forms of student life.

The remaining buildings consist of a large GREENHOUSE, a useful adjunct to the department of Botany, and also supplying flowers and plants for the adornment of the grounds in summer and of the buildings on public occasions. Besides these, a number of buildings are occupied as the HOMES OF THE MEMBERS OF THE FACULTY. The intimate relations resulting from the residence of both Faculty and students upon the college grounds is regarded as one of the most wholesome features of the college life.

LIBRARIES AND READING-ROOM.

The College has two libraries, the regular College Library, which occupies the Van Wickle Memorial Library, described above, and the Ward Library in Pardee Hall. The College Library was established at the foundation of the College, and has had a steady and uninterrupted growth since 1832, and is chiefly made up of books bearing directly on the courses of instruction. The Ward Library, the gift of the heirs of C. L. Ward, Esq., of Towanda, is largely made up of books of general literature and history and Political Science. Each of the Technical Departments has also a collection of books, magazines, and other scientific publications in rooms in

immediate connection with their lecture rooms and laboratories. By the gift of \$5000 Mr. Henry W. Oliver laid the foundation of the H. W. Oliver Chemical Library in the new Gayley Laboratory. The foundation has been added to by gifts from Prof. Edward Hart and others, and the incorporation of the College's collection of chemical works.

A friend of the College has bought and presented to the Henry W. Oliver Chemical and Metallurgical Library all the pamphlets, about three thousand in number, belonging to the library of the late Prof. Johannes Wislicenus, of the University of Leipsic.

Professor Wislicenus was a famous chemist. He was a pioneer in the study of the lactic acids, and led in the work which gave to us our present knowledge of stereoisomerism.

This library represents the collection of fifty years of great activity and will be a great addition to the Oliver Library.

The Literary Societies, also, have libraries numbering about 6000 volumes, largely of a literary character, which valuably supplement the more solid libraries of the College.

The College Library contains a papyrus scroll, five feet long, from a mummy at Thebes, with a hieratic inscription—pronounced by Seyffarth the finest he has seen—presented by the late Hon. John W. Garrett, of Baltimore, of the Class of '37.

There is also a full-length portrait of Lafayette, painted by Healey at the Chateau LaGrange, from Ary Sheffer's famous painting, and presented by the late Dr. Thomas W. Evans, of Paris.

ALUMNI ALCOVE.—During the past year there has been gathered for the College Library a collection of books and pamphlets written by the Alumni, Faculty, and Trustees of the College. These have been set apart to constitute a “Lafayette Library.” It now contains a full set of the College Catalogues from 1832 to the present time; all the Commencement addresses, and other official publications of the College of every sort. A complete file of *The Lafayette* from 1870; the *Melange*, an annual publication issued under various names from 1869 to the present time; also the *Touchstone*, issued monthly since 1896. The pamphlets written by the Alumni have been put up in bound volumes, about forty in number. The whole embraces a unique and valuable collection of three hundred volumes, that represent the literary activities of the College.

The LIBRARIES have received gifts, which are hereby gratefully acknowledged, from the following individuals and institutions:—

Individuals:—

R. H. Abernethy, '51, eleven volumes; W. C. Anderson, '73; William Beidelman; J. Turner Brakeley; Samuel Batz, '60; ex-President W. C. Cattell, one hundred volumes; Rev. I. Mench Chambers, '89, two volumes; Rev. J. C. Clyde, D. D., '66; Prof. S. J. Coffin, '58, one hundred and fifty-two volumes; William Cooper Conant; Rev. Wilbur Crafts, Ph. D.; Frederich Ehrlich; Mrs. Edsall Ferrier; B. Rush Field, M. D., '84; Rev. W. H. Filson, '68, forty-six volumes; Miss Mary Forman; Rev. W. H. Gill, D. D.; Hon. W. H. Graham; Frederick Green, '80, twenty-one volumes; Rev. F. S. Haines, one hundred and sixty-three volumes; Thomas K. Horne, '89; Rev. James D. Hunter, D. D., '78; John W. Jordan, LL. D., one hundred and one volumes; Horace Lehr, '86; Prof. M. B. Lambert, '82; George Loveland, '45; John Stevenson McMaster, '83;

Rev. Samuel A. Martin, D. D., '77; Rev. F. R. Marvin, '69, five volumes; Rev. H. G. Mendenhall, D. D., '74; Charles J. Montague, thirty-seven volumes; Prof. J. W. Moore, '64; Hon. Howard Mutchler, four volumes; Chauncey Hulbert Peacock, '03, four volumes; Stacy L. Roberts, '04; Mrs. W. B. Rogers; J. G. Rosengarten; Mrs. I. W. Schultz; W. D. Scott; J. A. Searight; Mrs. Edward R. Shaw, ten volumes; A. A. Smith, M. D., LL. D., '68, forty-eight volumes; Daniel E. Steckel, '03; James Steen; Rev. J. F. Stonecipher, D. D., '74, four volumes; William H. Stoops, '93; President E. D. Warfield, four volumes; Mrs. Ellen M. Watson; George W. West, six volumes; Mrs. William Young; Prof. R. B. Youngman, '60.

Firms and Institutions:—

American New Church Tract Publication Society; Boston Public Library; J. G. Brill Company; Canada: Dominion Meteorological Service; Case Memorial Library; Christiania, Norway: University Library; Columbia University; French Government; General Assembly of Presbyterian Church; Funk & Wagnalls Company; Harper & Bros.; Iowa Geological Survey; John Crerar Library, Chicago; Johns Hopkins University; Kenyon College, Class of '04; Lafayette, Class of '04; Maryland: State Geologist; Massachusetts: State Board of Health, four volumes; Mining Bureau, Manila, P. I.; New Jersey State Geologist; New Jersey State Board of Health; New Jersey State Library; New Orleans, La., Sewerage and Water Board; Oberlin College; Paterson, N. J., Free Library; New York Civil Service Commission; New York State Historian; New York State Museum; Pennsylvania Department of Agriculture; Pennsylvania Society of New York; Pennsylvania Society of Sons of Revolution; Pennsylvania State Library; Pennsylvania Steel Company; Princeton University; Shakspeare Society of Philadelphia; Smithsonian Institution; Sound Money League (New York); Theta Delta Chi Fraternity; University of Colorado; University of Michigan; University of St. Andrews, Scotland; University of Toronto; University of Wisconsin; Western Reserve Library; Williams College; Wisconsin State Tax Commission; W. S. Yeates, State Geologist, Georgia; Y. M. C. A., International Committee; Y. M. C. A., Lafayette College, four volumes.

United States Government: Bureaus and Departments, viz.:—

Bureau of Education; Bureau of Ethnology; Census Office; Department of Agriculture; Department of Agriculture, Weather Bureau; Department of Interior, six volumes; Department of Labor; Department of State; Geological Survey; Interstate Commerce Commission; Library of Congress; National Museum, five volumes; Naval Observatory; Navy Department; War Department, six volumes.

The Class of 1892 at their decennial reunion in 1902 subscribed the sum of \$500 to establish an alcove in the Library.

SCIENTIFIC COLLECTIONS.

These are extensive and valuable, and are rapidly increasing from year to year by gifts from societies and individual donors, and by special appropriations in addition to the fees for registration and matriculation.

Among the most valuable of the collections may be mentioned the extensive Herbarium, collected by Prof. Thos. C. Porter during forty years of enthusiastic labor; it is specially rich in North American plants, and is believed to contain the most complete Flora of Pennsylvania in existence; the series of Ward's celebrated casts, illustrating Geology and Palæontology, together with the specimens purchased for the College by Prof. Hitchcock in Europe.

The apparatus in the Department of Physics and Applied Mechanics, the instruments used in the Departments of Astronomy and Engineering, and the scientific equipment of the numerous and extensive laboratories, meet the demands of advanced instruction in these departments; a special feature, however, is the series of nine hundred Wall Charts, executed at the College by Gustave Garnier, under the direction of the Professors in the Departments of Astronomy, Chemistry, Physics and Applied Mechanics, Metallurgy, and Natural History. There are valuable models in Machine Drawing, Stone Cutting, Crystallography, and Architecture.

COLLEGE SOCIETIES.

LITERARY SOCIETIES.

The *Washington* and *Franklin* Societies were organized early in the history of the College and are conducted by the undergraduates. Both Societies have well-furnished apartments in Pardee Hall, and valuable libraries. They meet every Wednesday evening for literary exercises, consisting of orations, essays, and debates. A generous rivalry for College honors exists between them, and each year representatives of the two societies from the Junior Class engage in a public contest in oratory. On the day before Commencement the societies hold reunion meetings in their halls. These societies are an important part of College life and work, and *all the students are strongly advised to join them.*

BRAINERD EVANGELICAL SOCIETY.

The *Brainerd Evangelical Society*, as a society of inquiry, meets each Thursday evening and on the first Friday of each month in the interest of missions, and for the promotion of Christian effort. Its public anniversary is held on Sabbath evening of Commencement week, at which time a sermon is preached usually by some former member of the Society. In 1903 the preacher was Rev. Thomas Dale Logan, D. D., '69, Springfield, Ill.

The Society has great satisfaction in the completion of the building erected for its use by Mr. J. Renwick Hogg, '78. This beautiful and commodious edifice should mark an era of increased usefulness in the history of Y. M. C. A. work in the College.

BIOLOGICAL SOCIETY.

The *Biological Society* is for the purpose of making its members intelligent concerning the important biological questions of the day, and enabling them to appreciate the value of research in nature. The membership consists of those students of the three upper classes who are either prospective or present members of the classes in Biology, and of such graduate students as are interested in the laws of life comprehended through the Natural History Sciences.

It meets the second Thursday night of each month, when a lecture is given or a paper is read reviewing the chief articles in recent biological literature. The following subjects have been discussed lately: Cell Anatomy, Nature as Recorded by the Camera, The Essential Anatomy of the Eye, The Fertilization of Flowers through the Agency of Insects, and the Vascular System of Vertebrates.

SCIENTIFIC SOCIETY.

The *Scientific Society* has for its object the preparation and discussion of papers on engineering, chemical, or allied subjects. Laboratory students have the opportunity of working on original investigations, and communicating the results to the society.

EXPENSES.

The tuition is \$100 per annum in all departments. Sons of ministers of the Presbyterian Church and candidates for its ministry receive free tuition in the Classical Course, and are charged one-half tuition in the Technical courses.

The other College charges are as follows:—

General Expenses	\$8 00	a term.
Library and Reading-room	5 00	“
Gymnasium	2 00	“

The annual College charges are, therefore, for those who pay tuition in full, \$145.

Entrance Fees.—Each student pays \$5 when he is registered for examination on entering College, and \$10 when he is matriculated, thirty days afterward. These fees are appropriated to the Library Fund and to the increase of the scientific collections and apparatus. No fees are charged for diplomas.

Laboratories.—Apparatus for the use of students in the Chemical Laboratories will be furnished and charged in their account, and the charge canceled for that returned in good condition. Chemicals and all other materials will be charged according to the average cost. A deposit sufficient to meet these expenses is made on entering the Laboratories. Members of the Classical Department are admitted to all the privileges of the Laboratories while studying General Chemistry, and, for the present, without charge for the aid of the professor in attendance; each student will, however, pay for chemicals which he uses, and for any apparatus which he may break or injure. In the Physical Laboratory a fixed charge of \$5 per term is made for supplies and the use of apparatus.

Scholarships.—The endowed scholarships providing free tuition in the Classical Course will hold good for the Latin Scientific Course, but students in the other courses of the Pardee Scientific Department are required to pay one-half of the regular tuition fee in addition to the scholarship.

Aid is also given to young men of ability and good moral character who are dependent on their own efforts for their education. The amount will depend on the necessities of the applicant, but in no case will exceed the amount of the tuition fees in the Classical and Latin Scientific Courses, or one-half the tuition fees in the other Technical Courses. Application for such aid should be made to the President. No aid is granted to students pursuing special or incomplete courses of study.

BOARD, ROOMS, WASHING.

In all cases the place of boarding must be approved by the Faculty. The price of table board in clubs managed by the students at present averages from \$3 to \$3.50 per week. Board, including furnished room, in private families, is from \$4.50 to \$6 per week. Washing costs 40 cents per dozen pieces.

Unfurnished rooms in the College buildings rent for \$5 to \$30 a term (average \$15.88); unfurnished rooms adjacent to the College premises for \$12 to \$16 a term, or furnished rooms for \$15 to \$30 a term.

Students are expected to room in the College dormitories unless they receive permission to room elsewhere. If they do not occupy College rooms, they are subject to an assessment to meet the loss to the College for rooms left vacant. The reason for this rule is that the funds of the College have been invested in the dormitories in order to secure cheap and convenient lodgings for the students, and it is to the advantage of all that the buildings should be occupied, the income from the investment being essential to the work of the College, and the students being protected against exorbitant rents.

Information in regard to the selection of rooms can be had from Professor Moore, Inspector of College buildings, the buildings being open for inspection during each term, and three days preceding the first day of each term. Rooms are assigned only to students who have been admitted to College, or who present full certificates from authorized schools, in the order of their application.

The College bill for each term must be paid in advance, during the opening week of the term. If not paid within thirty days from the beginning of the term, a penalty of ten per cent. shall be added; and if it remain unpaid ten days before the end of the College term, the student shall be excluded from the examinations of that term. If it remain further unpaid at the first day of the next term the student shall be summarily dropped from the rolls of the College.

The care and regulation of the dormitories are under the direction and management of a Board of House Representatives, elected by the students. House rules are enacted and enforced by the Board. The Parietal Committee, composed of the Inspector of Buildings and Officers of Instruction who reside in the dormitories, acts as a court of appeal.

Board of House Representatives.—F. A. Frear, President, 34 South College; A. H. Woodworth, Vice-President, 81 Newkirk Hall; J. E. Iszard, Secretary, 152 Powell Hall; C. G. Beadenkopf, 140 Fayerweather Hall; C. L. Bolton, 63 Blair Hall; J. R. Frow, 75 Knox Hall; J. W. Smith, 105 McKeen Hall; W. J. Schwartz, 129 Martien Hall; L. S. Wolff, 163 East Hall.

Fuel Deposit.—The Treasurer also, on behalf of the Committee of Students, collects with the College bills at the beginning of the first term \$7, and of the second

term \$5, for fuel. The unexpended balance, if any, is refunded by the Committee at the close of the year. Of late the average cost for heating has been \$12.68 for each student in the steam-heated dormitories, and \$8.61 in the buildings heated by warm-air furnaces or stoves. The steam-heated dormitories are also lighted by electricity, the cost of which to each of the occupants is about \$6 a year.

A deposit of \$1 is also made at the beginning of each term to pay for public damages, the unexpended balance of which is returned to the student at the end of the year.

Annual Expenses.—Some money for books and other incidental expenses will be needed; but, with close economy, the total annual expenses—exclusive of tuition, clothing, and traveling expenses—need not exceed \$255, as will be seen from the following summary:—

	Liberal.	Moderate.	Minimum.
General College Expenses	\$24 00	\$24 00	\$24 00
Charge for College Reading-rooms, Gymnasium, &c.	21 00	21 00	21 00
Board, 36 weeks, at \$3.00 to \$4.00 . . .	144 00	117 00	108 00
Rent of College-room, \$15 to \$90 . . .	90 00	36 00	15 00
Light and Fuel	18 00	15 00	12 00
Washing	25 00	16 00	9 00
Tuition	100 00	100 00	100 00
Books and stationery	38 00	21 00	16 00
	\$460 00	\$350 00	\$305 00
Deduct for Sons of Ministers <i>et al.</i> , in Classical Course			100 00
			\$205 00
Deduct for same in other courses . . .			\$50 00
			\$255 00
Lowest charges for neces- } Classical.			\$205 00
sary expenses } Technical			255 00

Laboratory fees and damage assessment, which vary in amount, must also be added, while the personal expenses for clothing, &c.,

must be estimated according to individual experience. The first year will be made more expensive by the fees for registration and matriculation, and furnishings for room; \$300 will therefore be a small allowance.

Parents and guardians at a distance may deposit funds with some member of the Faculty, who will pay particular attention to the pecuniary concerns of the student, settling his bills, and transmitting an account of the expenditure, for which services he will charge a commission. It is strongly recommended that parents furnish their sons with little beyond what will meet their necessary expenses.

BEQUESTS AND DEVISES.

Each State has special statutory regulations in regard to wills, and it is most important that all testamentary papers be signed, witnessed, and executed in all other respects according to the laws of the State in which the testator resides. In all cases, however, the name of the corporation must be accurately given, as in the following forms:—

I give, devise, and bequeath to “The Trustees of Lafayette College,” in Easton, Pennsylvania, their successors and assigns forever, the sum of ———— dollars, to be invested by said corporation in good real estate security, and the interest accruing therefrom to be applied to the support of the Professors in said College.

I give, devise, and bequeath a certain lot, situated, &c., to “The Trustees of Lafayette College,” in Easton, Pennsylvania, and to their successors and assigns forever, for the uses and purposes of said College, according to the provisions of its charter.

PRIZES.

The following prizes are offered annually :—

THE FRANCIS A. MARCH PRIZE IN ENGLISH.

A prize of thirty dollars in books was given from 1862 to 1881 by the late Rev. William C. Fowler, LL. D., of Durham, Connecticut, and since 1881 has been continued by Henry A. Potter, M. S., Class of '77, of New York, under the title of "The Francis A. March Prize," upon the following conditions:—

"A committee of at least three shall be chosen by the Faculty to determine which student of the Senior Class has made the greatest proficiency in English Philology.

"The decision of the committee is to be made after attending an examination in some English classic, conducted by the Professor of English, and after reading essays written by the several members of the class, which shall contain a discussion of the language of some English classic."

The subject in 1904 will be the works of Ralph Waldo Emerson.

THE ASTRONOMICAL PRIZE.

A prize of thirty dollars in gold is awarded to the student making the greatest progress in the study of Astronomy in the Senior year.

MATHEMATICAL PRIZES.

Two prizes of the value of twenty dollars each are offered in the Department of Mathematics to those students of the Junior Class, one in the Classical and general courses of the Scientific Department, and one in the Technical Departments, who shall have exhibited during the first three years of the course the greatest proficiency in the study of Mathematics.

These prizes were founded, as was the astronomical prize above mentioned, in 1867, by Professor Traill Green, M. D., LL. D.

THE LOUNSBURY PRIZE IN CHAUCER.

A prize, consisting of books, is given to that student of the Sophomore Class who shall present the best essay upon some one of the works of Chaucer. This prize was given in 1896 by Thomas R. Lounsbury, Professor of English at Yale University, and will be continued by friends of the College as the Lounsbury Prize in Chaucer.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE.

A prize consisting of books of the Early English Text Society, of London, is given to that student of the Junior Class who shall at the close of the Junior year pass the best examination in "English before Chaucer." The examination is based upon selected texts announced from year to year, which in 1904 will be "Beowulf."

This prize was founded in 1871.

THE NEW SHAKSPERE SOCIETY'S PRIZE.

A prize of publications of the "New Shakspeare Society," of London, is awarded to that member of the Junior Class who passes the best general examination upon Shakespeare, his works, life, character, &c.

This prize was founded in 1875.

THE CLASS OF '83 PRIZE.

A prize of the value of fifteen dollars is annually awarded to that member of the Sophomore Class who shall have attained the highest standing in his division of the class in Trench on The Study of Words.

This prize was founded by the Class of 1883 at their graduation.

COLEMAN BIBLICAL PRIZES.

Three prizes, each of the value of twenty dollars, are awarded to those students of the Freshman Class who have attained the highest standing in the several divisions of Biblical study in that year.

These prizes were founded by the Rev. Lyman Coleman, D. D., in 1880.

PRIZES IN ORATORY.

The Washington and Franklin Literary Societies appropriate one hundred dollars a year for prizes in oratory. Four contestants are chosen from each Hall to take part in the Junior Oratorical Contest, which is held in May. In the presence of a public audience three Judges, approved by the Faculty, hear the speakers and award the prizes. Their decision is based on the merits of the performances as to originality and force, with reference both to composition and delivery. The first prize is fifty dollars, the second prize thirty dollars, and the third prize twenty dollars.

PRIZES IN DEBATE.

Three prizes, of the total value of fifty dollars, are awarded to the successful competitors in a Senior contest in debate, held on Washington's Birthday in each year, between three contestants from each of the literary societies, chosen by a competitive debate in each society prior to December 1st in the previous year. The amount of the prizes and the conditions of the award are similar to the Junior oratorical contest. The first of these contests was held in 1894. The subject for debate in 1904 is:

"RESOLVED, That President Roosevelt's course in regard to Panama has been wise and patriotic."

CIVIL ENGINEERING PRIZE.

A prize of the value of fifty dollars, the gift of Carroll Phillips Bassett, C. E., Ph. D., of the Class of 1883, is annually awarded to that member of the graduating class who presents the best graduating thesis and attains the highest standard of scholarship in the Civil Engineering course.

THE PARK PRIZE IN LATIN.

A prize of fifteen dollars for the Latin Department has recently been founded by Mr. Samuel R. Park, A. M., '84. In 1904 it will be awarded, on the work of the second and third terms Freshman Class, for excellence in Horace.

HISTORICAL ESSAY PRIZE.

A prize, consisting of a copy of his work, "*The Marquis de Lafayette in the American Revolution*," is given annually by Charlemagne Tower, Jr., LL. D., of Philadelphia, United States Minister to Germany, to that member of the Senior Class who shall, on or before the first day of October, present the best essay on some subject connected with the relations of *France and the United States*. The essays must not exceed three thousand words in length. The subject for the year 1904 is: "*The Louisiana Purchase*."

THE CHEMICAL ESSAY PRIZES.

A prize of five dollars in books is awarded each term to that member of the Junior or Senior Class who shall present the best term theme on some Chemical subject.

THE GILBERT PRIZE IN OLD ENGLISH.

By the will of Howard Worcester Gilbert, who died in Chester County, March 5th, 1895, a bequest was left to the College, with the provision that a gold medal of the value of forty dollars should be awarded every two years to the student writing the best essay on the Old English Language and Literature, beginning with Beowulf, in the earliest Anglo-Saxon period, and extending down to the year 1070. Should the competitors be of equal merit, preference is to be given to residents of Pennsylvania.

The medal is an inch and three-fourths broad, three-sixteenths of an inch thick, and contains on its face a relief portrait of King Alfred, with the date 871-901, surmounted by the Anglo-Saxon phrase, "Næs he gold hwæte." The reverse shows a garland encircled with the legend, "Howard Worcester Gilbert Old English Prize. Founded 1895." Space is left for the name of the recipient.

This prize will be awarded at the Commencement of 1904. It is open to competition of students of Anglo-Saxon in the graduate courses of 1902-03 and 1903-04. The essay must be handed in by May 1st, 1904.

'85 PRIZE IN PHYSICS.

The Class of 1885 founded a prize in 1897 in the sum of \$500, the annual income of which is given to that member of the Junior Class who attains the highest rank in the studies of Mechanics and Physics.

THE BLOOMBERGH PRIZE.

The Class of 1888 at its Decennial Reunion subscribed the sum of \$500, the annual income of which is awarded to that member of the Junior Class who shall attain the greatest proficiency in the study of the French and German languages and their literatures.

THE B. F. BARGE GOLD MEDAL.

A prize of a gold medal of the value of \$100 was founded by Benjamin F. Barge, Esq., of Mauch Chunk, Pa., whose death we regret to record as having occurred at Nanheim, Germany, on October 30th, 1902. The prize is to be awarded to that member of the Senior Class who shall deliver the best oration in an annual contest to be held on Memorial Day, May 30th.

BARGE MATHEMATICAL PRIZES.

By the bequest of the late Benjamin F. Barge, Esq., of Mauch Chunk, three prizes have been established for excellence in mathematical studies. These prizes will be awarded for the first time in June, 1905, to members of the Sophomore Class for excellence in the solution of original problems.

NOTE.—In all cases where a prize is awarded to an essay, the successful competitor must hand to the proper authority two typewritten copies of his essay before receiving the prize, if he is requested to do so.

RECENT ADDITIONS.

THE DEPARTMENT OF ELECTRICAL ENGINEERING has received valuable favors from R. D. Wood & Co., of Philadelphia.

THE DEPARTMENT OF BIOLOGY has received a gift of ten mounted birds from Frank Overton, M. D., Class of '90, Patchogue, N. Y.; also rattlesnakes from E. W. Greiner, '03, Benezette; Andrew H. Reeder, E. M., '90; and Rev. L. W. Eckard, D. D., '66.

THE DEPARTMENT OF MINING ENGINEERING AND GRAPHICS has received ten samples of steel wire rope, Hazard Manufacturing Company, Wilkesbarre, Pa.; model of Moran flexible joint, Moran Flexible Joint Company, Louisville, Ky.; nineteen volumes Mine Inspectors' Report, C. L. Bryden, '02; subscription to *El Monero Mexicano*, Richard E. Chism, City of Mexico; blue prints of anthracite mine maps, J. P. Jennings, '04, Forest City; model of diamond bit, L. G. Bradley, Duluth, Minn.

THE CIVIL ENGINEERING DEPARTMENT has received many valuable accessions, apparatus, and models by purchase and by gift. Among the donors are the American Bridge Company, photographs, standards for structural details, blue prints, and specifications; Stewart M. Neff, C. E., '88, Miller flush tank; Carroll P. Bassett, C. E., Ph. D., '83, shafting, hangers, and pulleys; J. K. Britton, '90, table of standards for bridge work; George K. Lehner, '93, photographs and drawings.

THE DEPARTMENT OF CHEMISTRY AND METALLURGY has received gifts from James Gayley, '76; Dr. L. D. Godshall, '87; Dr. Stuart Croasdale, '88; Mrs. Stuart Croasdale; Ernest B. McCready, '95; John J. Howard, '01; J. H. DeLong, '04; H. M. Miller, '04; H. H. Werner, '04; John G. Clemson, '06; P. S. Harrison, '07; W. K. Neale, '07; E. G. Acheson; Casella Color Company; William M. Grosvenor; Haile Gold Mining Company; E. H. Separk; J. H. Mariott; E. C. Taylor; J. W. Turrentine.

THE DEPARTMENT OF GEOLOGY AND MINERALOGY is the recipient of some fine samples of polished marble, also structural materials of different sorts (glazed bricks, wire glass, and tiling) from George D. Walbridge, of '98. The department has also received from the Georgia Marble Company, of Tate, Ga., excellent samples of marble, sawn and in the rough, illustrating the different varieties of marble from that famous locality.

THE DEPARTMENT of GEOLOGY.—Rev. Edwin McMinn, of Salem, N. J., has deposited with this department his extensive collection of minerals and fossils, numbering over two thousand valuable specimens.

The College has received the private collection of minerals, rocks, and fossils belonging to the late Samuel W. Barber, of St. Louis, of '40.

The collection of minerals gathered by James T. Doran, A. M., of '48, has been presented to the College by his widow.

In addition to the above, special mention should be made of the bequest to the College of the private collections of the late Traill Green, M. D., LL. D., whose connection with Lafayette College extended through the long period of sixty years, from 1837 to 1897, and by whose death the institution lost one of its staunchest and most eminent supporters. The collections consist of between three and four thousand specimens of rocks, minerals, and fossils, many of which are from foreign localities. His family have also given two hundred and fifty-eight volumes of scientific works.

DEGREES CONFERRED.

HONORARY DEGREES.

June 17th, 1903.

DOCTOR OF LAWS.—Hon. Harry Hakes, Wilkesbarre, Pa.

MASTER OF ARTS.—Andrew Thomas Smith, Ph. D., Principal of the State Normal School, Mansfield, Pa.

MASTER OF SCIENCE.—Thomas Fisher, Class of '88, Philadelphia, Pa.

DOCTOR OF LETTERS.—Rev. Carlos Bransby, Class of '75, Professor in University of California, Berkeley, Cal.

DEGREES IN COURSE.

June 17th, 1903.

BACHELOR OF ARTS.—A. S. Baker, Conn.; H. H. Bender, W. Va.; C. A. Bergstresser, Pa.; T. Burns, Pa.; H. Cole, Pa.; G. Copeland, Pa.; W. S. Dawson, Pa.; J. Godfrey, N. J.; H. R. Gold, Pa.; C. G. Guthrie, Pa.; H. E. Hoffman, N. J.; C. A. King, N. J.; H. F. Laub, Pa.; R. Lerch, N. J.; M. E. Maloney, N. J.; J. L. Miner, Pa.; C. H. Ortt, Pa.; C. F. Pfatteicher, Pa.; B. J. Reaser, N. J.; J. M. Shelley, Pa.; F. C. Shipman, N. J.; L. W. Smith, N. J.; M. C. Stayer, Pa.; D. E. Steckel, Pa.; M. P. Steele, Pa.; S. M. Uhler, Pa.; A. A. Walter, Pa.; W. A. Yeisley, Pa. Total, 26.

BACHELOR OF PHILOSOPHY.—W. D. Bushnell, Pa.; E. Ernst, Texas; R. M. Fraunfelder, Pa.; A. H. Fretz, Pa.; C. F. F. Garis, Pa.; E. W. Greiner, Pa.; O. A. Greiner, Pa.; C. H. Hartge, Pa.; B. A. Kline, Pa.; F. L. Miller, Pa.; J. H. Miller, Pa.; D. H. More, Pa.; E. D. Phillips, Pa.; H. C. Richter, Iowa; W. M. Smith, Pa.; J. F. Steele, Pa.; G. E. Twitmyer, Del.; A. T. Ilgen, Pa., 1900. Total, 18.

BACHELOR OF SCIENCE.—W. H. Rush, Pa.; J. P. Treadwell, Conn. Total, 2.

BACHELOR OF SCIENCE (in Chemistry).—R. B. Hitchcock, Pa.; J. C. Howe, N. J.; W. I. Jacobus, N. J.; H. H. Larkin, N. Y.; J. C. Twitmyer, Del.; W. J. Welsh, Pa. Total, 6.

CIVIL ENGINEER.—G. Bell, Pa.; F. B. Cunningham, Pa.; F. K. Day, Pa.; F. Falkner, N. Y.; H. Gordon, N. J.; L. J. Green, N. Y.; E. C. Haldeman, Pa.; W. S. Haldeman, Pa.; A. L. Hill, Pa.; W. Stoutnour, Pa.; H. E. Trout, Pa. Total, 11.

MINING ENGINEER.—D. R. Brown, So. Dak.; E. F. Ferer, Pa.; W. A. Pollock, Pa.; J. C. Skuse, Minn. Total, 4.

MASTER OF ARTS (Class of 1900).—E. C. Brinker, Jr., Pa.; S. D. Hawk, N. J.; J. S. Heberling, Pa.; S. N. Hutchison, N. J.; W. D. Little, N. J.; H. C. McCarteney, D. C.; J. W. Meeker, Pa.; A. Phillips, Pa.; A. C. Sawtelle, Pa.; J. A. Stotz, Pa.; H. N. Warbasse, N. Y.; J. W. Woehrle, '93, Honorary, Pa. Total, 12.

MASTER OF SCIENCE.—L. D. Fraunfelder, '94, Pa.; B. P. Tyler, '97, Pa.; E. C. Jones, '98, Pa.; D. A. McBride, '98, N. J.

MASTER OF SCIENCE (Class of 1900).—E. G. Bray, Md.; J. E. Hindman, Pa.; W. W. Hubley, Pa.; B. O. Hultgren, Pa.; B. A. Jones, Pa.; F. O. Kichline, Pa.; J. J. Logan, Pa.; O. J. Oswald, N. J.; W. B. Rosenberger, Colo.; E. S. Tillinghast, Mich. Total, 14.

DOCTOR OF PHILOSOPHY.—John Lewis March, A. M., '93, Associate Professor in Modern Languages, Union University, Schenectady, N. Y.; George W. Twitmyer, A. M. (Franklin and Marshall '84), Superintendent of Schools, Wilmington, Del.

Total—First Degree, 67; Master's Degree, 20; Ph. D., 2.

From the opening of the College to the present time 5,123 students have been enrolled; of these 2,000 have received the First Degree.

COMMENCEMENT DISTINCTIONS, 1903.

HONORS.—Clinton Artinius Bergstresser, South Bethlehem, Pa.; Charles Fred Fleming Garis, Easton, Pa.; Ernst Wilhelm Greiner, Benzette, Pa.; Charles Henry Hartge, Glen Savage, Pa.; Carl Frederic Pfatteicher, Easton, Pa.; James Monroe Shelly, Bally, Pa.; Harry Edgar Trout, Lykens, Pa.

ORATIONS.—Harold Herman Bender, Martinsburg, W. Va.; Thomas Burns, Moosic, Pa.; Frank Brockett Cunningham, Indiana, Pa.; Jesse Godfrey, Stewartsville, N. J.; Otto Albert Greiner,

Benezette, Pa.; Clyde Graeme Guthrie, Indiana, Pa.; Benjamin Aumiller Kline, Liverpool, Pa.; David Hubbell More, Bangor, Pa.; Edward David Phillips, Peely, Pa.; Frank Cline Shipman, Phillipsburg, N. J.; William Mackay Smith, Chambersburg, Pa.; Daniel Edwin Steckel, Easton, Pa.; Warren Stoutnour, Everett, Pa.; Stewart Mann Uhler, Stockertown, Pa.; Alfred Abraham Walter, Wilkesbarre, Pa.

PRIZES AWARDED.

SENIOR PRIZEMEN.

THE FRANCIS A. MARCH PHILOLOGICAL PRIZE: Edward Davis Phillips, Peely.

THE ASTRONOMICAL PRIZE: Divided equally between Charles Fred Fleming Garis and Carl F. Pfatteicher.

THE BASSETT PRIZES IN CIVIL ENGINEERING: —

FIRST PRIZE: Divided equally between F. K. Day, Hazleton, and Harry Gordon, Boonton, N. J.

SECOND PRIZE: Divided equally between H. E. Trout, Lykens, and Warren Stoutnour, Everett.

CHARLEMAGNE TOWER PRIZE IN FRENCH HISTORY:—

SENIOR DEBATE: March 2d, 1903.

QUESTION: *Resolved*, That it is the duty incumbent upon the National Government to more efficiently provide by legislation for the restriction and control of all combinations of capital commonly known as trusts.

SPEAKERS.

Washington Hall.

Franklin Hall.

THOMAS BURNS, affirmative; OTTO A. GREINER, affirmative;
EDWARD D. PHILLIPS, negative; BENJAMIN A. KLINE, affirmative;
DANIEL E. STECKEL, negative; JAMES M. SHELLY, negative.

FIRST PRIZE: Otto A. Greiner, Benezette.

SECOND PRIZE: Benjamin A. Kline, Liverpool.

THIRD PRIZE: Edward D. Phillips, Peely.

B. F. BARGE ORATORICAL PRIZE: Gold Medal, \$100, Otto A. Greiner, Benzette.

PRIZE SCHOLARSHIP IN MEDICO-CHIRURGICAL COLLEGE: Not awarded.

GILBERT PRIZE IN OLD ENGLISH: Not awarded.

JUNIOR PRIZEMEN.

THE MATHEMATICAL PRIZES:—

CLASSICAL DEPARTMENT: Earl Lavers, Easton.

TECHNICAL DEPARTMENT: James H. DeLong, Hancock.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE (London): Theron Lee, Carbondale.

THE "NEW SHAKSPERE SOCIETY'S PRIZE": Frank W. Sebring, Jersey Shore.

JUNIOR ORATORICAL PRIZES, Contest May 18th, 1903.

SPEAKERS.

Franklin Hall.

RICHARD N. HART,
WILLIAM M. KIEFFER,
FOREST J. KLEINHANS,
HOWARD M. MERRITT,

Washington Hall.

WILLIAM W. JOHNSTON,
STACY L. ROBERTS,
FRANKLIN W. SHAW,
ALBERT N. WOLFF.

FIRST PRIZE: Fifty dollars, Stacy L. Roberts, Williamsport.

SECOND PRIZE: Thirty dollars, William W. Johnston, Shields.

THIRD PRIZE: Twenty dollars, Howard M. Merritt, Winbourne.

THE CLASS OF '85 PRIZE IN PHYSICS: George E. Post, Phillipsburg, N. J.

JUNIOR CHEMICAL PRIZES (for the best Term Theme):—

FIRST TERM: Not awarded.

SECOND TERM: Richard Hart, Easton.

THIRD TERM: Hugh M. Miller, Harmony, N. J.

THE BLOOMBERGH PRIZE IN MODERN LANGUAGES: Richard N. Hart, Easton.

SOPHOMORE PRIZEMEN.

THE LOUNSBURY PRIZE IN CHAUCER: James Sigman, West Chester.

CLASS OF '83 ENGLISH PRIZE: Classical, A. D. Thomas, Hazleton; Technical, James Sigman, West Chester.

FRESHMEN PRIZEMEN.

LYMAN COLEMAN BIBLICAL PRIZES.

SECTION A.: Edward I. Brown, Boonton, N. J.

SECTION B.: G. J. Long, Tower City.

SECTION C.: Charles E. Stryker, Phillipsburg, N. J.

THE PARK PRIZE IN LATIN: Divided between Charles F. Schaefer, Easton, and Fred C. Stockton, Pacific Grove, Cal.

ORATORICAL PRIZES, *Washington Hall*: First, William S. Lare; second, Edmund G. Wilson. *Franklin Hall*: First, Erwin W. Grove; second, Frederick E. Stockton.

CLASS MONITORS.

Appointed for general Excellence in study:—

SENIOR CLASS: C. H. Canning.

JUNIOR CLASS: J. L. Jones.

SOPHOMORE CLASS: F. E. Stockton.

FRESHMAN CLASS: Mark D. Ewell and Charles E. St. John.

Theses Presented by Candidates for Degrees in the Technical Courses of the Pardee Scientific Department.

JUNE 17th, 1903.

1. Comparative Strength of Plain and Reinforced Concrete Beams.
HARRY EDGAR TROUT, Lykens.
WARREN STOUTNOUR, Everett.
2. Comparative Strength of Hand and Machine Made Cement Briquettes.
GEORGE BELL, Marysville.
EDWARD CLAYTON HALDEMAN, Philadelphia.

3. The Study of Water Consumption of Easton, Pa.
FRANKLIN KAERCHER DAY, Hazleton.
HARRY GORDON, Boonton, N. J.
4. Test of a Four-Inch Venturi Water Meter.
FRED FALKNER, Wyoming, N. Y.
ALBERT LONG HILL, Scottdale.
WALTER STANLEY HALDEMAN, Philadelphia.
5. Design of a Sewage Disposal Plant for Easton, Pa.
LYNN JONATHAN GREEN, Utica, N. Y.
6. Design of a Garbage Disposal Plant for Easton, Pa.
FRANK BROCKETT CUNNINGHAM, Indiana.
7. Review of the System of Mine Drainage at Mt. Lookout Colliery at Wyoming, Pa.
EDMUND FOLTZ FERER, Riegelsville.
8. Review of the System of Mine Haulage at Mt. Lookout Colliery at Wyoming, Pa.
JOHN CHARLES SKUSE, Duluth, Minn.
9. Review of the System of Mine Ventilation at Mt. Lookout Colliery at Wyoming, Pa.
WILLIAM AGNEW POLLOCK, Allentown.
10. Review of the Hoisting Arrangements at Mt. Lookout Colliery at Wyoming, Pa.
DAVID ROBERT BROWN, Springfield, So. Dak.
11. Synthetic Carbohc Acid.
JOSEPH CLYDE TWITMYER, Wilmington, Del.
12. The Manufacture of Acetate of Lime and Wood Alcohol at Brandt, Pa.
ROBERT BOTSFORD HITCHCOCK, Scranton.
13. Aluminum Chlorid.
JOHN CANFIELD HOWE, Passaic, N. J.
14. Zinc Chlorid.
WILLIAM LESTER JACOBUS, Newark, N. J.
15. Commercial Preparation of Glucina from Beryl.
WILLIAM JOHN WELSH, Scranton.
16. The Determination of Glycerol in Fats.
HARRY HUBBARD LARKIN, Buffalo, N. Y.

THE ALUMNI ASSOCIATION.

The Alumni Association is composed of Graduates of the College and such former students as left College before graduation, in good standing, as may be elected. The annual meeting is held on Tuesday preceding Commencement Day.

The Association has the privilege of choosing six members of the Board of Trustees, who hold office for six years. In June, 1902, David Bennett King, Esq., of New York City, '71, and Nathan Grier Moore, Esq., Chicago, '73, were chosen. In the spring of 1904 two more will be voted for.

The executive committee is as follows: McCluney Radcliffe, M. D., '77, Chairman, Philadelphia; H. D. Maxwell, '82, Easton; Frederick R. Drake, '86, Easton; Dr. E. M. 'Green, '83, Easton; David B. Simpson, '86, New York City.

It is desirable to keep up the full record, so long maintained, of the residences, occupations, literary efforts, and public services of the alumni and former students of the College.

Information is solicited in regard to these points, and also in reference to matters appropriate to the obituary record, which is annually prepared for the Alumni Association.

Each Alumnus is asked to send his personal record, carefully revised to date, to the Secretary before May 1st, 1904.

ALUMNI ASSOCIATION OF LAFAYETTE.

HON. HORACE P. GLOVER, '71, Mifflinburg *President.*
 THOMAS FISHER, '88, Philadelphia *Vice-President.*
 PROF. SELDEN J. COFFIN, '58, Easton *Secretary and Treasurer.*

LOCAL ASSOCIATIONS.

THE LAFAYETTE ALUMNI ASSOCIATION OF NORTHEASTERN PENNSYLVANIA.

ALBERT H. WELLES, '89, Scranton *President.*
 OLIN F. HARVEY, JR., '01, Wilkesbarre. *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF PHILADELPHIA AND VICINITY.

HON. FRANK G. HARRIS, '76, Harrisburg *President.*
 CHAS. B. ADAMSON, '77, 730 Market Street *Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
NEW YORK AND VICINITY.

HON. GEORGE C. AUSTIN, '85, 192 Broadway, New York . *President.*
LEWIS H. ALLEN, '94, 35 Nassau Street, New York. . . . *Secretary.* ?

THE LAFAYETTE ALUMNI ASSOCIATION OF
THE WEST BRANCH.

FRED H. PAYNE, '88, Williamsport *President.*
R. FLEMING ALLEN, '90, Williamsport *Secretary.* ?

THE LAFAYETTE ALUMNI ASSOCIATION OF
CENTRAL PENNSYLVANIA.

REV. D. K. FREEMAN, D. D., '56, Huntingdon *President.*
REV. A. N. HAGERTY, '81, Carlisle *Secretary.* ?

THE LAFAYETTE ALUMNI ASSOCIATION OF
WESTERN PENNSYLVANIA.

REV. E. J. KNOX, D. D., '77, Allegheny *President.*
EDWARD C. CHALFANT, '95, 402 Grant Street, Pittsburgh . *Secretary.* ?

THE LAFAYETTE ALUMNI ASSOCIATION
OF MARYLAND.

ROBERT H. SMITH, '67, 53 St. Paul Street, Baltimore . . *President.*
PEARCE KINTZING, M. D., '81, Baltimore *Secretary.* ?

THE LAFAYETTE ALUMNI ASSOCIATION OF
CHICAGO AND VICINITY.

HUGH A. FORESMAN, '87, Chicago *President.*
LESLIE F. GATES, '97, 203 Michigan Boulevard, Chicago . *Secretary.* ?

THE LAFAYETTE ALUMNI ASSOCIATION OF
THE NORTHWEST.

REV. GEORGE C. POLLOCK, D. D., '61, Litchfield, Minn. . . *President.*
HON. JAMES T. HALE, '77, Duluth, Minn. *Secretary.* ?

THE LAFAYETTE ALUMNI ASSOCIATION OF
WASHINGTON, D. C.

JAMES F. R. APPLEBY, M. D., '64, Georgetown *President.*
SNOWDEN ASHFORD, '88, 918 Farragut Square *Secretary.* ?

JUNIOR ALUMNI ASSOCIATION OF EASTON.

W. F. PACKER ALLIS, '95, Easton *President.*
H. B. MOON, '99 *Vice President.*

STUDENTS.

GRADUATE STUDENTS.

C. A. Bergstresser, A. B., Pa.	Philosophy and Philology	Lafayette, '03.
C. L. Bryden, E. M., Pa.	Mining and Chemistry,	" '02
G. E. Fetters, E. E., Pa.	Mining	" '02.
S. B. Gilhuly, A. M., N. J.	History and English Literature, Lafayette, '86.	
J. B. Hench, A. M., Pa.	Latin	" '83.
H. C. Mohn, A. M., Pa.	Philosophy and Pedagogy,	" '95.
J. F. L. Raschen, A. B., B. D., Pa.	Philology and Ger- manic Languages	Wallace, '98.
H. H. Reichard, A. B., Pa.	French and German,	Lafayette, '01.
E. F. Reimer, A. M., Pa.	Philology	" '97.
A. Roberts, Ph. B., M. S.,	History and Politi- cal Science	" '99.
A. C. Sawtelle, A. M., N. J.	History	" '00.
J. W. Turrentine, M. S., N. C.,	Chemistry	Univ. of N. C. '01.

GRADUATES 12

SENIOR CLASS, 1904.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Louis Anderson, Jr. † . . .	Ch. . . .	Bloomsbury, N. J. . . .	35 S.
Harry Daniel Bailey . . .	C. . . .	Easton . . .	536 Berwick St.
Edward Harold Barnes . . .	C. . . .	Perth Amboy, N. J. . . .	21 S.
Charles Glen Beadenkopf, .	Ch. . . .	Wilmington, Del. . . .	D. K. E.
Fred Adam Blaicher . . .	Ch. . . .	Newark, N. J.	56 S.
Charles Lewis Bolton † . . .	C. E. . . .	Philadelphia	63 B.
Charles Hewson Canning . . .	C. . . .	West Chester	D. K. E.
Russell Kennedy Carpenter †	C. E. . . .	Easton	412 Parsons St.
John Earl Carpenter . . .	E. M. . . .	Phillipsburg, N. J., 151 Washington St.	
George Miller Castles . . .	E. E. . . .	Phillipsburg, N. J., 177 Chambers St.	
Robert Ray Chamberlin . . .	C. . . .	Palmerton	35 S.
Thomas McKeen Chidsey † .	C. . . .	Easton	Paxinosa Ave.
Howard Albert Clark . . .	C. . . .	Bridgeton, N. J.	84 N.
John Earl Coolidge † . . .	C. . . .	Scranton	62 B.
James Henry DeLong . . .	Ch. . . .	Hancock	19 S.
Frederick Knecht Detwiller	L. . . .	Easton	52 Centre Sq.
Earl Ralph Dooley	C. . . .	Hancock, N. Y.	64 B.
Edward Eugene Dreisbach .	C. . . .	Easton	219 High St.
William Malcolm Duncan .	C. . . .	High Spire	344 McC.
John Abraham Ernst . . .	C. E. . . .	Llewellyn	40 Cattell St.
Arthur Samuel Fox	C. . . .	Easton, 17th and Lehigh Sts.	
Frank Asa Frear	L. . . .	Lake Winola	34 S.
Raymond Moore Freed . . .	C. . . .	Perkasie	37 S.
Augustus Henry Fretz, Ph. B.,	C. E. . . .	Doylestown	120 N. 3d.
James Richard Frow	C. . . .	Lewistown	75 K.
Thomas Omar Gilland † . . .	C. E. . . .	Shamokin	D. K. E.
Ernst Wilhelm Greiner, Ph. B.,	Ch. . . .	Benezette	228 McC.
Albert Ernest Hall	A. B., Ch. . . .	Indianapolis, Ind., (Knox College, Ill., '02.)	130 McC.
Richardson Hand	C. E. . . .	Wilkesbarre	119 McK.
Richard Newell Hart	Ch. . . .	Easton	Prof. Hart's.
David Arthur Hatch	E. M. . . .	Easton	901 Wilkesbarre St.
Clinton Thielens Hilliard .	E. E. . . .	Easton	214 N. 3d St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
John Hodgson	C.	Avoca	167 E.
Gustavus Adolphus Hulbert, C.		Brookside, N. J., 163 Main St., Phillipsburg, N. J.	
John Estell Iszard	L.	May's Landing, N. J.	152 P.
Joseph Paul Jennings	C. E.	Forest City	68 B.
Walter Johnston	C. E.	Philadelphia	138 F.
William Wallace Johnston	C.	Shields	122 McK.
Joseph James Kehler, Jr.	C.	Frackville	S. 4th St.
Wm. Carpenter Kennedy,	L.	Bloomsbury, N. J.	30 S.
William Miles Kieffer	C.	Milton	149 P.
Forrest Jacob Kleinhans	C.	Easton, . . . Philadelphia St.	
Alfred Theodore Koehler	E. E.	Easton	42 S. Green St.
Olin York Kyte	L.	Pittston	108 McK.
Fred Launt	L.	Walton, N. Y.	91 McK.
Earl Roy Lavers	C.	Easton	324 Cattell St.
Theron Lee	C.	Carbondale	B'rd.
James Norris McDowell	C.	Principio, Md.	24 S.
Charles McCord Means	C.	Shippensburg	65 B.
Howard Milton Merritt	L.	Winburne	82 N.
Hugh McNair Miller	Ch.	Harmony, N. J.	100 McK.
Henry Miller Morey	C.	San Antonio, Texas	89 N.
William George Morgan †	C.	Bristol, England, 431 Clinton Place.	
Clarence Floyd Nagle	E. E.	York	68 B.
Lloyd Dutt Ott	C. E.	Easton	230 McCartney St.
John Frederick Parsons	L.	Media	32 S.
George Edwin Post	E. E.	Phillipsburg, N. J., 310 Chambers St.	
Frank Howard Raub †	C. E.	Easton	719 Cattell St.
Emanuel Theodore Rehrig	C.	Easton	107 Madison St.
Stacy Lippincott Roberts	C.	Williamsport	84 N.
James Andrew Root	C.	Easton	133 M.
Frank Wilson Sebring	C.	Jersey Shore	133 M.
Franklin William Shaw	L.	Patchogue, N. Y.	85 N.
Joseph Wilson Smith	C. E.	Hazleton	105 McK.
Roy Frank Snyder	C.	Easton	932 Wash'n St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Thomas Franklin Soles . . .	L. . . .	McKeesport . . .	99 McK.
J. A. Garfield Stitzer . . .	C. . . .	Schuylkill . . .	106 McK.
David Styer	C. E. . . .	Burlington, N. J. . . .	88 N.
Leroy Dey Swingle	L. . . .	Dunmore	24 S.
Henry August Theis	L. . . .	Germania	134 M.
James Arthur Van Atta . . .	C. . . .	Hackettstown, N. J. . . .	46 S.
Charles Joseph Walker . . .	E. E. . . .	Mayfield	139 F.
Henry Heil Werner	Ch. . . .	Bangor	131 M.
John Edward Werner	C. E. . . .	Bangor	131 M.
Raymond Geiser Whitesell, †	C. . . .	Easton	700 Walnut St.
Floyd Grant Wilcox	E. M. . . .	Bangor	67 B.
James Homer Wilson	L. . . .	Cumberland, Md.	66 B.
Wilbur Emerson Winder †	C. E. . . .	Williamsport	129 McC.
Albert Negley Wolff	C. . . .	Welsh Run	21 S.
Leroy Senour Wolff	C. . . .	Greensburg	164 E.
Arthur Heath Woodworth . . .	C. . . .	Sayre	81 N.

SENIORS 81

JUNIOR CLASS, 1905.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
➤ John Griffith Atwood . . .	C. . . .	Albany, N. Y., 197 Chambers, Ph'bg.	
➤ William Vanderveer Berg . . .	C. . . .	Ellenville, N. Y. . . .	S. 4th.
➤ Robert Patrick Blewitt † . . .	E. M. . . .	Mexico, Mexico . . .	97 McK.
➤ Ralph Johnson Boyd . . .	C. . . .	Hensel	27 S.
➤ Albert Brown	E. E. . . .	Hazleton	69 B.
Harold Atwood Brown † . . .	E. E. . . .	Glen Ridge, N. J. . . .	77 K.
➤ Robert Brown, Jr.	C. . . .	Stroudsburg	44 S.
➤ Edward Irvin Campbell . . .	C. . . .	Easton	405 Burke St.
➤ Edward Percy Case	L. . . .	Patchogue, N. Y. . . .	22 S.
➤ Mortimer David Case	L. . . .	Patchogue, N. Y. . . .	22 S.
➤ Edwin Dubois Chase	Ch. . . .	Easton	12 S.
➤ William Hamlin Cline . . .	E. E. . . .	Phillipsburg, N. J., 96 Bennett St.	
➤ Nathan Stiger Conover, Jr. . .	C. . . .	Clinton, N. J.	26 S.
Joseph Royer Conrad	C. . . .	Greencastle	319 McC.
➤ Paul Darwin Cook	E. M. . . .	Merryall	161 E.
➤ Welling Thomas Cook	C. . . .	Merryall	161 E.
John Horn Cooper	C. E. . . .	Easton	200 Burke St.
➤ John McGill Cooper	E. E. . . .	West Philadelphia. . . .	122 McK.
➤ Charles Matthew Coxe	L. . . .	Wilkesbarre	38 S.
➤ William Sloan Creveling . . .	Ch. . . .	Bloomsbury, N. J. . . .	Home.
N. W. Crowell	Ch. . . .	Milford, N. J.	Home.
➤ Henry Copp Edgar	C. . . .	Easton	143 Bushkill.
➤ John Theodore English † . . .	L. . . .	Elizabeth	147 P.
➤ Thomas Franklin Eynon . . .	E. E. . . .	Scranton	69 B.
➤ John Frederick Farquhar . . .	E. E. . . .	Bethlehem, 36 Centre St., B'm.	
➤ Edward Franklin Farquhar, C. . .		Bethlehem, 36 Centre St., B'm.	
➤ George Herman Fickes	L. . . .	Mt. Rock	27 S.
➤ Robert Thomas Fox	L. . . .	Downingtown	74 K.
➤ James McDowell Gilland † . .	C. E. . . .	Shamokin	D. K. E.
➤ Henry B. Greensted	Ch. . . .	Scranton	D. K. E.
➤ Walter Bohrer Guy	L. . . .	Washington, D. C. . . .	77 K.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Frederick Zeller Hartzell	C. . . .	Lebanon	60 S.
Lester Cleveland Hawk	L. . . .	Bloomsbury, N. J. . .	Home.
Horace Rogan Hoffman	C. . . .	Olney	44 S.
Clarence Ricker Hopper †	Ch. . .	Newark, N. J.	127 M.
George Howarth	L. . . .	Wilkesbarre	72 Blair.
Ross Strominger Hubley †	C. E. .	Harrisburg	128 M.
Thomas D. Irwin †	L. . . .	Huntingdon	146 P.
John Lewis Jones	L. . . .	Bangor	39 S.
Wallace Montgomery Keely,	C. . . .	East Greenville . . .	130 M.
William Neely Keith	C. . . .	Newtown	83 N.
Christian Arthur Schultz Kemper	C. . . .	Indianapolis, Ind. . .	12 S.
William Huntington Kirk- patrick	C. . . .	Easton.	2 Reeder St.
Robert Odillon Klotz	L. . . .	Lansford	400 High.
Frederich Gaston Kolb	C. . . .	San Paulo, Brazil . . .	30 So.
Rudolf Heinrich Kudlich, .	E. E. .	Drifton	129 M.
Albert Moore Lane	L. . . .	Duncannon	42 S.
Dudley Eugene Latham † .	L. . . .	Weatherly	142 P.
Morris Robert Henry Levin †	E. E. .	Beverly, N. J.	114 McK.
Tracy Day Luccock	C. . . .	Chicago, Ill.	117 McK.
Thomas James McCabe	Sci. . .	Mahanoy City	400 High.
Henry McKeen, Jr.	C. . . .	Easton	1254 Butler St.
Joseph Pomeroy Maclay † .	C. . . .	Chambersburg	118 McK.
Clyde Kennedy Miller	L. . . .	Harmony, N. J.	24 S.
John Knauss Montgomery †	Ch. . .	Hazleton	43 S.
Oscar Louis Morgenstern . .	C. E. .	Easton	826 Northampton.
Joseph Morrison †	Ch. . .	Easton	614 Ferry.
Edward Guy Nellis	C. . . .	Geneva, N. Y.	206 McK.
James Lawson Nesbitt	C. . . .	Colora, Md.	85 N.
Harvey Bentley Parsons . . .	L. . . .	Media	46 So.
Walter Winfield Peacock . .	E. M. .	Mt. Airy	137 F.
Walter Leon Peake	L. . . .	Wellsboro	15 S.
David Wendell Phillips . . .	C. . . .	Scranton	94 McK.
Darwin Crawford Pomeroy .	E. E. .	Port Royal	92 McK.
Burt Rabbitts	L. . . .	Springfield, Ohio . .	91 McK.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
➤ Will Wallace Ramsey . . .	C. . . .	Stroudsburg	27 So
➤ Clarence Oscar Rasely . . .	C. E.	East Bangor	34 S.
➤ Harry Reese	E. E.	Wilkesbarre	83 N.
➤ Carmon Ross	L. . . .	Pen Argyl	43 S.
➤ Harry Herbert Ruef . . .	Ch. . .	Poughkeepsie, N. Y. .	132 M.
➤ Matthew Johnston Scammell	Ch. . .	Trenton, N. J., . . .	106 McK.
➤ William John Schwartz . .	E. E.	Hazleton	129 M.
➤ Ralph English Seaman † .	Ch. . .	Perth Amboy, N. J., .	74 K.
➤ Howard Anders Seipt . . .	C. . . .	Worcester	60 S.
➤ Jehiel Edward Shewell . .	C. . . .	Phillipsburg, N. J.,	285 Mercer.
➤ James Fay Shipman	C. . . .	Sunbury	148 P.
➤ William Grant Showman † .	L. . . .	Mt. Pleasant	19 S.
➤ George Allan Sigman	L. . . .	West Chester	150 P.
➤ James Sigman	L. . . .	West Chester	132 S.
➤ Earle Clifford Smith	C. E.	Philadelphia	152 P.
➤ Gustave Frederick Smith .	E. E.	Honesdale	102 McK.
➤ Ambrose L. Spencer, Jr. . .	L. . . .	Scranton	121 McK.
➤ Lee Prevost Stark	L. . . .	Tunkhannock	149 P.
➤ Frank Wells Stewart, Jr. .	C. . . .	Easton	111 N. 4th St.
➤ Alfred David Thomas	C. . . .	Hazleton	23 S.
➤ Franklin Clark Thompson .	L. . . .	Easton	344 McC.
➤ Sargeant Prentiss Turnbach †	Ch. . .	Hazleton	230 McC.
➤ Charles Nesbitt Ulrich . . .	L. . . .	Catasauqua	109 McK.
➤ George Alfred Walter	Ch . . .	Scranton	D. K. E.
➤ Lee Spangler White †	E. M.	Braddock	80 N.
➤ Joseph Burton Wiley † . . .	C. . . .	Colora, Md.	B'rd.
➤ Philip Francis Williams . .	L. . . .	Martin's Ferry, Ohio .	26 S.
➤ John Hunt Wilson	Ch. . .	Easton	531 Cattell St.
➤ Leo Earl Wilt	C. E.	Towanda	147 P.
➤ Harlan Edgar Woehrl † . . .	Ch. . .	Easton	642 Walnut St.
➤ Andrew Addison Wren † . . .	E. M.	Trenton, N. J.	78 K.
➤ Harley Paul Yeisley	L. . . .	Nazareth	Home.
➤ Henry Sherwood Young † . .	L. . . .	Easton	607 Paxinosa Ave.

JUNIORS 98

SOPHOMORE CLASS, 1906.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
> Joseph Grubb Alexander†	C. E.	Scranton	103 McK.
> Eugene A. Anders	L.	Norristown	25 So.
> George Crowell Andrews	C. E.	Buffalo, N. Y.	136 F.
> Ernest Arthur Aston . . .	Ch.	Wilkesbarre	175 E.
Chester Reese Atkinson . .	E. M.	Rising Sun, Md.	15 S.
Reuben L. Babcock, Jr. . .	C.	Absecon, N. J.	98 McK.
Bertram Rodenbough Bach- man†	Ch.	Phillipsburg, N. J., 97 N. Main St.	
> Roy William Baker	L.	Ogden, Utah	146 P.
Oscar Ogilvie Barr	L.	Pine Grove	206 McC.
> Raymond Grey Barr† . . .	E. E.	Pittsburgh	127 M.
> Herman Ario Briggs	C.	Nescopeck	31 S.
> Edward Ingersoll Brown	L.	Boonton, N. J.	49 S.
James Kay Brown†	C.	McDonald	—
John Wright Caswell . . .	E. M.	Lime Hill	—
> John Gardner Clemson† . .	Ch.	Pittsburgh	509 High St.
> John Whitney Colliton . .	C. E.	Newfane, N. Y.	322 McC.
Ernest Lynn Coolidge† . .	E. M.	Scranton	129 McC.
Herbert Taite Darlington .	E. E.	West Chester	D. K. E.
> James Algernon Darsie . .	C. E.	Pittsburgh	135 F.
William Oswill Dennis† . .	C. E.	Nazareth	116 McK.
Russell Dunbar Dietrich .	C. E.	Easton	411 High St.
> Francis Shunk Downs . . .	L.	Dover, Del.	D. K. E.
Harry Joseph Duane	C. E.	Point Pleasant, N. J., 228 McC.	
> Francis Armin English . .	L.	Elizabeth, N. J.	145 P.
> Warren Harold Fee	L.	Bombay, India.	73 K.
Henry A. Picking Fischer .	C.	Easton	63 N. 4th St.
> William Trumbower Foster,	L.	Phillipsburg, N. J., 40 Fairview Heights.	
> John Henry Gaskins	L.	Danville	13 S.
> Edwin Clark Gilland . . .	C.	Shamokin	Kuhn's.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
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> Erwin Willard Grove	L.	Ringoes, N. J.,	36 S.
> William Cummings Hall	C. E.	Cape May City, N. J.	37 S.
> Henry Kinsey Hauck	Ch.	Easton, 1044 Northampton St.	
> John Bernard Hawley	C. E.	Wilkesbarre	56 S.
> Ruger Wilson Hay	E. M.	Easton	14th St.
> Reuben Harold Hellick	C. E.	Easton	510 Northampton.
> Otto Ludwig Hellman	C.	Waterbury, Conn.	138 F.
John Royden Hess	L.	Phillipsburg, N. J.	—
> Robert Lewis Horner	C.	Emmitsburg, Md.	65 B.
> Thomas Locke Hoskins †	L.	West Chester	D. K. E.
> Joshua Fletcher Hunter	C. E.	Wyncote	107 McK.
> William Lewis Jackson	Ch.	Chester, N. Y.	—
Kreider Ettinger Kurtz	L.	Mifflinburg	92 N.
William Sloan Lare	L.	Flemington, N. J.	81 N.
Gebhard Joseph Long	C.	Tower City	42 S.
> Alexander Wilson McCand- less †	L.	Pittsburgh	113 McK.
Jerome Alfred McFall	C. E.	Easton	331 Cattell St.
> Howard Haley McIntire	Ch.	Bridgeton, N. J.	101 McK.
> Joseph Ware McIntire †	Ch.	Bridgeton, N. J.	117 McK.
> Samuel Clarence McLaugh- lin	E. E.	Easton	40 Wilkesbarre St.
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Fred Leslie Morgan †	C. E.	Alliance, Ohio	—
Herbert Charles Moyer	E. E.	Easton	830 Wolf St.
> Frank Milton Newbury †	E. E.	Tunkhannock, 40 Cattell St.	
Isaac Alonzo Nicholas †	L.	Doylestown	139 F.
Erie Jacob Ochs	Ch.	Allentown	145 P.
> Asher J. Odenwelder, Jr.	L.	Easton	47 S. 4th St.

SOPHOMORES.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
> Thomas Osborn	C. E. . .	Wainscott, N. Y. . .	—
Philip Roswell Phillips	C. . . .	Scranton	94 McK.
Edgar John Powell	E. E. . .	Scranton	69 B.
Wilson Franklin Rabenold	C. E. . .	Allentown	—
> Frank Elmer Reeder	L. . . .	New Bloomfield	87 N.
> James Fred Reid †	Ch. . . .	West Chester	115 McK.
Solon Aaron Reinhard	C. E. . .	Kutztown	305 Cattell St.
> John Herman Reinholdt	C. E. . .	Manning, Ia.	148 P.
> Frank Hannaman Ronk	Ch. . . .	West Chester	150 P.
> William James Ruch, Jr.	C. E. . .	Pittsburgh	86 N.
> Henry DeWitt Saylor	Ch. . . .	Easton	202 S. 6th St.
> Claude Francis Schaeffer	C. . . .	Easton	626 Ferry St.
> Alexander Brady Sharpe †	C. . . .	Chambersburg	D. K. E.
> Thomas Alden Shields	C. E. . .	Hackettstown, N. J. . .	79 N.
> William Weaver Shuster	E. E. . .	Shamokin	D. K. E.
> Thomas Boughton Silliman,	E. M. . .	Easton	122 McC.
> Francis LeRoy Smith	C. E. . .	Wellsboro	328 McC.
> Hamilton Ross Smith	C. . . .	Media	70 B.
> Jay Mark Smith †	E. E. . .	Duluth, Minn.	151 P.
> Frank Xavier Soete	C. E. . .	Honesdale	102 McK.
Charles Russell Stecker	Ch. . . .	Easton	127 S. 7th St.
Edgar Zell Steever	C. E. . .	Fort Assiniboine, Mont. .	—
> Frederick Eugene Stockton, C.	C. . . .	Pacific Grove, Cal. . . .	49 S.
> Charles Elmer Stryker	C. E. . .	Phillipsburg, N. J., 111 Summit Ave.	
> Bascom Augustus Taylor †	C. E. . .	Wyalusing	322 McC.
Justus Vinnett Taylor, Jr.,	G. S. . .	Wyalusing	—
Rolland Marshall Teel	L. . . .	Hackettstown, N. J., . .	79 N.
> Joseph John Thomas	C. . . .	Hazleton	23 S.
> Ralph Edward Thomas	C. . . .	Phillipsburg, N. J., Morris and Fillmore Sts.	
Mark Townsend, Jr.	L. . . .	Linwood, N. J.	—
> Fred Walter Uhler	E. M. . .	St. Peter, Minn., 114 S. 3d St.	
> Jacob Peter Uhler	E. E. . .	Stockertown	Home.
> Sayre Pancoast Uhler	C. . . .	Easton	133 Cattell St.
> Otto Wack	C. E. . .	Lansdale	328 High.

LAFAYETTE COLLEGE.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Charles Sharp Ware † . . .	L. . . .	Bridgeton, N. J. . . .	88 N.
Harry Bomberger White † . . .	C. E. . .	Landisville, No. 2 Clinton Pl. (A. B., Franklin and Marshall, 1903.)	
Edmund Graham Wilson . . .	C. . . .	West Philadelphia, 110 McK.	
Clarence Fenton Wilt . . .	E. M. . .	Pittsburgh	319 McC.
Frank Yocum †	C. E. . .	Reading	66 B.
SOPHOMORES			99

FRESHMAN CLASS, 1907.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
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Warren Tampa Acker.....	C. E.	Scranton.....	131 McC.
Charles Elwood Albert.....	C. E.	Pen Argyl	231 Cattell.
> James Patterson Alexander..	E. E.	Hollidaysburg.....	140 F.
> William Clark Alexander....	C.	Washington, D. C.	100 McK.
Augustus Luis Anders.....	C. E.	Santiago, Cuba	50 S.
> Charles Robbins Anderson...	C. E.	Bloomsbury, N. J.	Home.
> Frank Rockwood Bacon.....	C.	Bridgeton, N. J.	87 N.
> Manohar Lal Badhwar, 2d....	E. E.	Ferozepore, India...	71 Blair.
Mohan Lal Badhwar, 1st....	Ch.	Ferozepore, India...	344 McC.
John Barberey.....	C. E.	Easton.....	216 Pine.
> Robertson Trelvar Barret....	C.	Katonah, N. Y.	117 McC.
> Walter J. Berry.....	Ch.	Brooklyn, N. Y.	140 F.
> Arthur Clifton Boyce.....	L.	Tuscola, Ill.	59 S.
Walter Edward Breen.....	C. E.	Phillipsburg, N. J., 51 Summit Ave.	
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William Vincient Cullen.....	E. E.	Phillipsburg, N. J.,	152 Broad.
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> Harold Edgar Diehl.....	C.	Easton...	1122 Washington.
> Thomas Gordon Ditchett....	L.	Bangor.....	221 McC.
> Erastus Raymond Doud....	Ch.	Hazleton.....	105 McK.
> Wallace Douglass Durrett....	L.	Wallace, Kan.	601 High.
Walter Bream Edmundson...	L.	Pittsburgh.....	82 N.
Forest Hulings Emmons....	G. S.	Wilmington, Del.	—
> Walter French Evans.....	C. E.	Beaver.....	136 F.
Mark Dee Ewell.....	C. E.	Wyoming, N. Y.	58 S.
> Edward Dietrich Flad.....	Ch.	Easton.....	802 Cattell.

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Joseph B. Foster, Jr.....	C.....	Wilmington, Del.....	51 S.
John Leon Freeman.....	C. E.....	Norristown.....	Kuhn's.
Albert Allen French †.....	L.....	Buffalo, N. Y.....	137 F.
Thomas Henry Gilland.....	L.....	Greencastle.....	49 McC.
Stewart Wesley Gisriel.....	L.....	Baltimore, Md.....	—
Robert Van Valzah Glover...C. E.....	C. E.....	Mifflinburg.....	118 McK.
David Walter Griffiths.....	L.....	Wilkesbarre.....	38 S.
Guy Heebner Guiterman....C.....	C.....	Shamokin.....	Kuhn's.
John Andrew Hamilton.....	C. E.....	Mercer.....	90 N.
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Horace Hammon McDowell ‡	G. S....	Pittsburgh.....	_____
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Andrew Parker McMeen.....	E. M....	Mifflintown.....	92 McK.
Warren McPherson.....	Ch.....	Bridgeton, N. J....	117 McK.
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Jed David Shilling.....	C. E....	Cornwall.....	80 N.
Thomas Lockhart Shilton...C. E....	C. E....	Freedom.....	86 N.

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FRESHMEN.....			132

-5-

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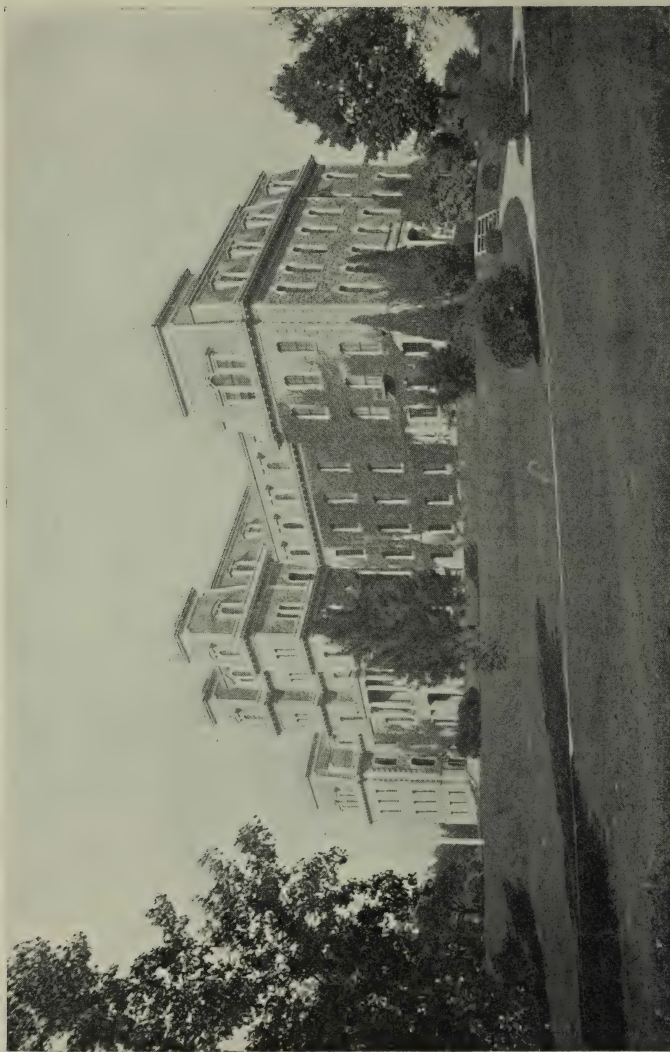
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SEVENTY-THIRD YEAR
1904-1905

EASTON, PENNSYLVANIA
1905

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CONTENTS.

	PAGE
Calendar	5
Lafayette College	6
Board of Trustees	7
Faculty	8
Admission	11
Courses of Instruction in all Departments	19
The Bible—Physical Culture	20
Classical Department:—	21
The Course of Study	21
Mental and Moral Philosophy	22
History and Political Science	24
Rhetoric and Elocution	28
Languages and Literatures	28
Mathematics and Astronomy	36
Physics	38
Chemistry	38
Biology	39
Special Courses in Biology for Students preparing for the Study of Medicine	39
Geology	42
Synopsis of Classical Studies	44
 PARDEE SCIENTIFIC DEPARTMENT.—	
General Courses:—	
Latin Scientific Course	49
The Course of Study	49
General Scientific Course	53
The Course of Study	53

	PAGE
Technical Courses:—	
Courses common to all Departments	60
Mathematics, Surveying, Drawing, Logic, Rhetoric and Elocution, Mineralogy, Physics, Chemistry	60
Civil Engineering Course	69
Summer School of Engineering	76
Mining Engineering Course	80
Electrical Engineering Course	86
Chemical Course	91
General Information	96
Arrangement of Lectures and Recitations	96
Attendance	96
Examinations, Standing	97
Absences and Re-examinations	98
Graduation, Commencement, Degrees	102
Religious Instruction	105
Lectures	107
Terms and Vacations	107
Buildings	108
Libraries and Reading-Rooms	112
Scientific Collections	115
Literary and Scientific Societies	115
Expenses	117
Bequests and Devises	122
Prizes and Scholarships	123
Recent Additions	128
Degrees and Honors Conferred, 1904	129
Commencement, 1904, Prizes	130
Alumni Associations	134
Students:—	
Graduate Students	137
Undergraduates	137
Summary	150

LAFAYETTE COLLEGE.

Lafayette College enters upon the work of the new century with every reason to feel that the hopes of the Founders, far back in the nineteenth century, have been realized. It has grown steadily and surely with the growth of the country. Its Faculty has won wide recognition and has grown in numbers. Its students are more numerous than at any time in its history. Its lovely site has been beautified by a noble group of buildings. In the last year of the just closed century a new era was begun in the erection of the Van Wickle Library and the reorganization of the dormitories. The Gayley Laboratory of Chemistry and Metallurgy, and a building for the Y. M. C. A., the gift of Mr. J. Renwick Hogg, are the most recent additions to the College buildings. With all its growth, Lafayette College remains in fact and in purpose a college; its aim is the education of men; its ideals are determined by moral as well as intellectual considerations; its atmosphere is distinctly Christian.

The College was granted its first charter March 9th, 1826. Its first exercises were held May 9th, 1832, under the presidency of Rev. George Junkin, D. D. The present beautiful site was first occupied in 1834. The College was taken under the care of the Synod of Philadelphia of the Presbyterian Church in 1850. In 1866, during the presidency of Rev. William C. Cattell, D. D., the Pardee School of Science was established by Ario Pardee, Esq. It is situated at Easton, Pa., at the confluence of the Delaware and Lehigh Rivers, and is easily accessible by a number of railroads.

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Of the above Trustees, Messrs. Kirkpatrick, '63; Hand, '65; Gayley, '76; Snodgrass, '57; Waller, '70; Pardee, '74; Adamson, '77; Hogg, '78; Shaefer, '78; Radcliffe, '77; Eckard, '66; Green, '83; Markle, '80; J. E. Fox, '85; E. J. Fox, '78; King, '71; Moore, '73; Baker, '77; Cattell, '83; Glover, '71; Shaw, '85, and Laird, '92, are Alumni of Lafayette College.

MEETINGS OF THE TRUSTEES.

Thursday, February 9th, 1905	ANNUAL BUSINESS MEETING.
Tuesday, June 20th, 1905	COMMENCEMENT WEEK.
Wednesday, October 25th, 1905	FOUNDERS' DAY.

FACULTY.

REV. ETHELBERT DUDLEY WARFIELD, D. D., LL. D.,
President, Professor of History and Political Science.
 (John I. Blair Foundation.)

FRANCIS ANDREW MARCH, LL. D., L. H. D., D. C. L., LITT. D.
Professor of the English Language and Comparative Philology.

REV. AUGUSTUS A. BLOOMBERGH, A. M., PH. D.
*Professor of Modern Continental Languages and their Literatures, and
 Lecturer on European History.*

REV. ROBERT BARBER YOUNGMAN, A. M., PH. D.,
Professor of the Greek Language and Literature.

REV. SELDEN JENNINGS COFFIN, A. M., PH. D., *Retired.*
 (James H. Coffin Professorship of Astronomy.)

JAMES W. MOORE, A. M., M. D.,
*Dean of the Pardee Scientific Department, Professor of Mechanics and
 Experimental Philosophy.*

CHARLES McINTIRE, A. M., M. D.,
Lecturer on Sanitary Science.

JOSEPH JOHNSTON HARDY, A. M., PH. D.,
Professor of Mathematics and Astronomy.
 (George Hollenback Professorship of Mathematics.)

WILLIAM BAXTER OWEN, A. M., PH. D.,
Professor of the Latin Language and Literature.

EDWARD HART, PH. D.,
Professor of Analytical Chemistry.
 (William Adamson Professorship of Analytical Chemistry.)

JAMES MADISON PORTER, C. E.,
Professor of Civil and Topographical Engineering.

FRANCIS A. MARCH, JR., A. M., PH. D.
Professor of English Literature.

WILLIAM SHAFER HALL, C. E., E. M., M. S.,
Professor of Mining Engineering and Graphics.
 (George B. Markle Professorship.)

JACOB D. UPDEGROVE, A. M., M. D.,
Lecturer on Hygiene, Director of Physical Training.

EDGAR MOORE GREEN, A. M., M. D.,
Consulting Physician in the Department of Physical Training.

ALVIN DAVISON, A. M., PH. D.,
Professor of Biology.
(Jesse Chamberlain Professorship of Botany.)

FREDERICK BURRITT PECK, PH. D.,
Professor of Mineralogy and Geology.

AMORY PRESCOTT FOLWELL, A. B.,
Professor of Municipal Engineering.

REV. THEODORE ALLEN ELMER, A. M.,
Acting Professor of Moral Philosophy and Hebrew.

HENRY WYSOR, B. S.,
Assistant Professor of Analytical Chemistry and Metallurgy.

ALLAN ROBERTS, PH. B., M. S.,
Instructor in History.

WILLIAM DARLINGTON LITTLE, A. M.,
Tutor in Mathematics and Latin.

HARRY HESS REICHARD, A. B.,
Tutor in German and Greek.

STANLEY EUGENE BRASEFIELD, C. E., M. S.,
Instructor in Mathematics and Graphics.

REV. JOHN FREDERICK LOUIS RASCHEN, A. B.,
Instructor in Modern Languages.

GEORGE ELWOOD FETTERS, E. E.,
Instructor in Mathematics and Drawing.

JOHN WILLIAM TURRENTINE, M. S.,
Assistant in Chemistry.

CLINTON ARTINIAS BERGSTRESSER, A. B.,
Tutor in Latin and Mathematics.

LEONARD PERLEY DICKINSON, B. S.,
Instructor in Electrical Engineering.

JAMES H. DELONG, B. S.,
Assistant in Chemistry.

GEORGE E. POST, E. E.,
Assistant in Physical Laboratory.

COLLEGE OFFICERS.

ROBERT BARBER YOUNGMAN, PH. D.,
Clerk.

JAMES W. MOORE, A. M., M. D.,
Inspector of Buildings.

SAMUEL L. FISLER, A. M.,
Treasurer.

REV. JOHN F. STONECIPHER, D. D.,
Librarian.

EDWARD HART, PH. D.,
Curator of Gayley Hall, and Librarian of the Henry W. Oliver Library.

REV. MARCIUS W. KRATZ, A. M.,
Registrar.

HARRY D. BAILEY, A. B.,
Assistant in Treasurer's Office.

CLASS DEANS.

SENIOR CLASS The President.
JUNIOR CLASS Professors Bloombergh and Elmer.
SOPHOMORE CLASS Professors Youngman and Hall.
FRESHMAN CLASS Professors Hardy and Owen.

LAFAYETTE COLLEGE.

ADMISSION.

Every applicant for admission to the College is expected to report at the College offices and register immediately on his arrival. Before registering he must submit to the Registrar a satisfactory certificate of moral character from his pastor or some other person known to the College authorities, and a diploma or certificate of graduation from the school which he last attended, or, if he be not a graduate, a statement that he leaves the school with the approval of its principal and is honorably dismissed to this College, with a statement of the studies which he has pursued and the course which he desires to pursue. His application having been approved he is admitted to the examinations. Examinations are regularly held on the day following the annual commencement day in June, and the days preceding the first day of the autumn term in September, and also on the first day of the second and third terms.

REQUIREMENTS FOR ADMISSION TO THE FRESHMAN CLASS.

Candidates for admission to the Freshman Class are examined in the following books and subjects. It is strongly recommended that candidates be prepared for examination on the requirements as specified. Equivalents will be accepted only when absolutely necessary.

A. REQUIREMENTS IN ALL THE COURSES OF STUDY.

GEOGRAPHY.—Political and Physical Geography.

HISTORY.—*United States*: Johnston, McMaster, or Fiske.

General History: Fisher or Freeman. Such books as Myer's & Swinton's *General History* are not adequate.

MATHEMATICS.—*Arithmetic*: Complete, including the Metric System.

Algebra: Through Radicals and Quadratics (first thirteen chapters of Wentworth's *College Algebra*, or an equivalent).

Geometry: Plane Geometry entire; as in Wentworth or Loomis.

ENGLISH.—*Grammar*: A general examination will be given without special reference to any particular text-book to test familiarity with paradigms and syntactical analysis, and the correct use of English idioms.

Franklin's Autobiography and *Milton's Paradise Lost*, Books I and II; to be thoroughly studied as to subject-matter, form, and structure, including the language used, as to its etymology, syntax, and prosody.

Prose Composition: The writing of a short essay will be required upon a subject drawn from the foregoing text-books. No candidate will be accepted in English whose work is notably deficient in point of spelling, punctuation, idiom, or division into paragraphs.

The works recommended for study by the Association of Colleges and Preparatory Schools of the Middle States and Maryland will be accepted in place of Franklin and Milton, as follows:—

1902–1906: Shakespeare's *Julius Cæsar*; Milton's *L'Allegro* and *Il Penseroso*, *Comus*, *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton* and *Life of Johnson*.

For 1903, 1904, 1905: Shakespeare's *Macbeth*; Milton's *L'Allegro*, *Il Penseroso*, *Comus* and *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton* and *Addison*.

For 1906, 1907, 1908: Shakespeare's *Julius Cæsar*; Milton's *L'Allegro*, *Il Penseroso*, *Comus*, and *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton* and *Addison*; Lincoln's *Gettysburg Address*.

In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

Reading: Every candidate must have read a certain number of works of English literature. It is expected that the read-

ing shall be done under the direction of an instructor and accompanied by frequent examinations during the preparatory course, for which four years is appropriate.

The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books. In preparation of this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

The books set for this part of the examination will be those recommended by the Association of Colleges and Preparatory Schools of the Middle States and Maryland, as follows:—

For 1903, 1904, 1905: Shakespeare's *Merchant of Venice* and *Julius Cæsar*; *The Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *Vicar of Wakefield*; Coleridge's *Rime of the Ancient Mariner*; Scott's *Ivanhoe*; Carlyle's *Essay on Burns*; Tennyson's *Princess*; Lowell's *Vision of Sir Launfal*; George Eliot's *Silas Marner*.

For 1906, 1907, 1908: Shakespeare's *Macbeth* and *The Merchant of Venice*; *The Sir Roger de Coverley Papers* in *The Spectator*; Irving's *Life of Goldsmith*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe* and *The Lady of the Lake*; Tennyson's *The Passing of Arthur*, and one of the three Idyls, *Elaine*, or *Geraint and Enid*, or *Gareth and Lynette*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

B. ADDITIONAL REQUIREMENTS FOR THE SEVERAL COURSES.

CLASSICAL COURSE.

GEOGRAPHY.—*Ancient Geography*.

HISTORY.—*Roman History* to Augustus, and *Greek History* to Alexander. The requirements are intended to be additional to the requirement in General History, and should be

met by the use of books on Roman and Greek History, such as Myers', "Rome, Its Rise and Fall"; Morey's, Leighton's, or Allen's Roman History, and Morey's or Oman's Greek History.

LATIN.—*Grammar*: The Roman method of pronunciation is used.
Cæsar: Commentaries, four books, for a portion of which an equivalent in Nepos will be received.

Cicero: Orations, seven.

Virgil: Æneid, six books; *Bucolics*.

Prose Composition: Daniell's, or equivalent.

GREEK.—*Grammar*: Pronunciation according to the written accents and in accordance with the preface to Goodwin's Grammar or Hadley-Allen's, sections 11, 14, 19, 20, 21.

Xenophon: Anabasis, four books, for a portion of which an equivalent in The Cyropaedia will be received.

Homer: Iliad or *Odyssey*, three books; or

New Testament: Gospels, three.

Prose Composition: Collar and Daniell, or equivalent.

For admission to the—

LATIN SCIENTIFIC COURSE.

The requirements are the same as for the *Classical Course* except that for the *Greek* is substituted:—

NATURAL PHILOSOPHY.—The elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—A thorough knowledge of the Grammar and one hundred pages of simple prose. For details see below.

For admission to the—

GENERAL SCIENTIFIC COURSE.

The requirements are the same as for the Classical Course except that both *Latin* and *Greek* are omitted, and instead of the Ancient Languages are substituted:—

SOLID GEOMETRY.

ALGEBRA AND PLANE TRIGONOMETRY as stated in Technical Courses below.

NATURAL PHILOSOPHY.—The elementary principles; and

GERMAN.—Two years' study.

REQUIREMENTS IN GERMAN.

The First Year's Study (at least 5 hours per week throughout the year) should comprise the following: (a) Careful drill upon pronunciation. (b) Frequent drill upon and repetition from memory of easy colloquial sentences. (c) Mastery of the rudiments of grammar. The inflection of articles, nouns, adjectives and pronouns. The conjugation of weak and strong verbs. The uses of prepositions and the simpler uses of the modal auxiliaries. The elementary rules of syntax and of word order. (d) Composition. (e) Reading of 100 (12 mo.) pages of graduated text from a reader, with constant practice upon variations of the text.

The Second Year's Work Should Embrace: (a) Reading of 250-300 pages from easy stories and *one* play. (b) Drill upon the rudiments of grammar. (c) Practice upon variations of the text. (d) Composition.

The following works are suitable reading after the first year's course:

For the Year 1905-1906.—About 50 pages from Leander's *Träumereien*, or Baumbach's *Sommermärchen*, followed by Hauff's *Das Kalte Herz* or Zschokke's *Der Zerbrochene Krug*; then Storm's *Immensee*; lastly, Schiller's *Wilhelm Tell* or Lessing's *Emilia Galotti*.

For the Year 1907-1908.—Spyri's *Moni der Geissbub*, or Gerstäcker's *Germelshausen*, followed by Heyse's *L'Arrabiata*, or *Auf der Sonnenseite* (edited by Bernhardt). Then: Eichendorff's *Aus dem Leben eines Taugenichts*; lastly, Lessing's *Minna von Barnhelm*, or Schiller's *Die Jungfrau von Orleans*.

(N. B.—Too much stress cannot be laid upon the drill in grammar and upon variations of the text to enable the student to use German idiomatically and easily.)

TECHNICAL COURSES.

For admission to the schools of ENGINEERING and CHEMISTRY the additional requirements are as follows:—

SOLID GEOMETRY.

ALGEBRA.—Properties of quadratic equations; indeterminate equations; inequalities; ratio, proportion, and variation;

arithmetical, geometrical, and harmonical progressions (chapters XIV, XV, XVI, XVII, and XVIII of Wentworth's College Algebra, or an equivalent).

PLANE TRIGONOMETRY.—Through the solution of right and oblique triangles (Crawley or an equivalent); candidates should bring their logarithmic tables to the examination.

GEOGRAPHY.—Physical Geography.

NATURAL PHILOSOPHY.—Elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—Two years' study in GERMAN as above.

No candidate will be admitted to a technical course if conditioned in both Geometry and Trigonometry.

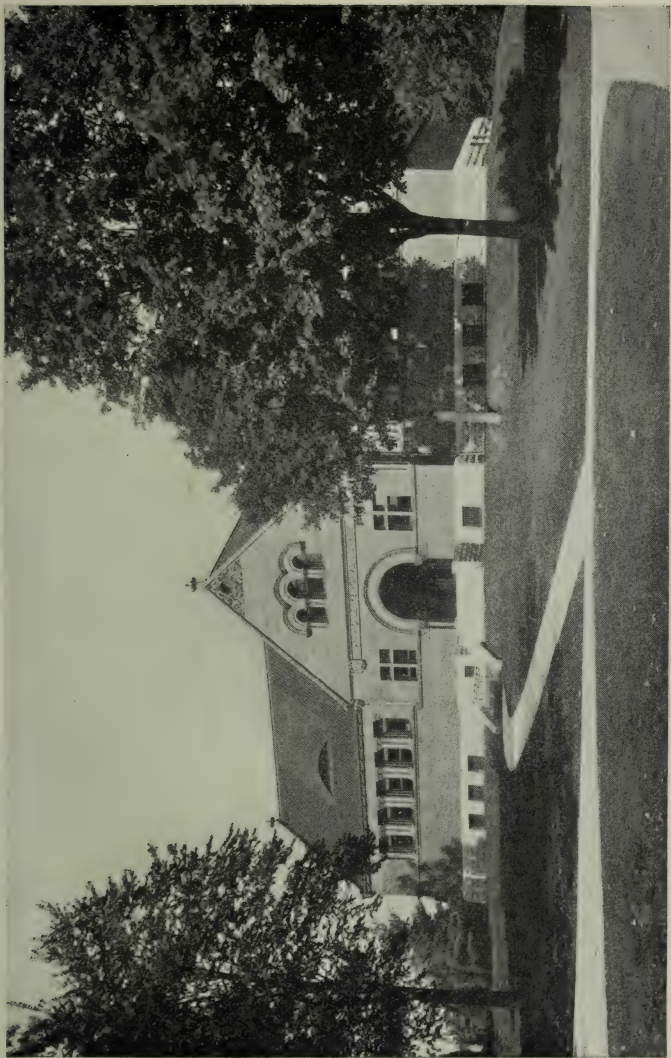
PARTIAL OR SPECIAL COURSES.

In addition to the courses above specified students may be admitted under exceptional circumstances to pursue courses of study of a special character not leading to a degree. Such students are required to undergo such preliminary examination as may be deemed necessary to ascertain their fitness to pursue the proposed course, and when admitted they are subject to the same rules and regulations and the same examinations in the studies pursued as are other undergraduates. On completing their course they will receive, on application, certificates of proficiency in such courses as they have satisfactorily completed.

ADVANCED STANDING.

Candidates for advanced standing are examined not only in the preparatory studies, but also specially in the previous studies of the class they wish to enter, or their full equivalents.

Students from another College bringing certificates of



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rank and honorable dismissal are permitted to recite on trial with corresponding rank in this College, until there is sufficient test of their qualifications for admission to regular standing. They will, however, be examined on whatever studies of the course may not be in the curriculum of the College from which they come, unless there are full equivalents.

No student, whether from another College or not, will be admitted to the Senior Class as a candidate for a degree after the beginning of the second term.

CONDITIONS.

Students who fail to pass in a part of the subjects in which they are examined may be admitted upon the condition that they pass a satisfactory examination on such subjects before the end of the term next after that in which they enter. The number of such conditions with which a student is admitted to the College will be determined in each case by a vote of the Faculty.

CERTIFICATES.

Certificates of the Examination Board of the School and College Association of the Middle States and Maryland, of the Regents of the University of the State of New York and of certain approved preparatory schools are received in lieu of examination for entrance. Certificates, which will be accepted only from graduates of regularly prescribed preparatory courses, must be signed by the Principal and certify only to work done during school hours. They should be filed with the Registrar before the entrance examination in June. Blank certificates will be furnished upon application. Wherever the

certificate does not cover one or more of the requirements of admission or supply a satisfactory equivalent, an examination upon such subject or subjects will be required. Such certificates will not be received after one year from the completion of the period of study for which they are given unless an additional certificate of continued study accompany them.

MATRICULATION.

No student is considered a regular member of the College until after his matriculation, which takes place thirty days after his entrance. During the interval between his admission and matriculation he is, however, in all respects subject to the laws of the College.

COURSES OF STUDY REQUIRED OF ALL DEPARTMENTS.

All of the courses of study are so arranged as to provide for at least three lectures or recitations each week-day except Wednesday and Saturday, which are half-holidays, there being no afternoon recitation. Wednesday evening is set apart for the Literary Societies, and in order to co-operate with their work the first exercise on Thursday morning is given to elocution. Every student is expected to conform to this arrangement of hours. Special students must arrange a schedule of sixteen weekly exercises. One recitation hour is regarded as the equivalent of three hours of field and laboratory work.

BIBLICAL INSTRUCTION.

The morning recitation in every class of all departments on Monday in each week is given to Biblical instruction. In the Freshman year a general view of the contents of the Bible and of each book is given, with special attention to chronology, history and geography. The class is divided into three sections, instructed by Prof. Hardy, Prof. Hall and Mr. Bergstresser. The text-books are the English Bible and Coleman's Geography of the Bible. In the Sophomore year the Acts of the Apostles is studied. The students in the Classical Course read the book in the original Greek with Prof. Youngman; those in the Latin Scientific in Latin with Prof. Owen, and the Technical divisions in French

with Mr. Raschen and Mr. Reichard. Special attention is given to the lives and labors of the Apostles and to the founding of the Christian Church. In the Junior year the Epistle to the Romans is studied. The students in the Classical Course read it in the original with Prof. Francis A. March, in the Latin Scientific with Prof. Elmer in Latin, and in the Technical courses with Prof. Bloombergh in German. It is studied with reference to language and doctrine. In the Senior year a course, in which Uhlhorn's Conflict of Christianity and Heathenism is used as a text-book, is given during the first half of the year by the President, and during the remainder of the year in the History of the English Bible. In addition to these courses the Old Testament in the original Hebrew is offered as an elective study in the Senior year.

It is intended that the Bible shall be a central object of study throughout the course. It is dealt with reverently as the Word of God, and as the inspired and infallible rule which God has given to His people.

In connection with the study of the Bible, certain prizes were established by the Rev. Lyman Coleman, D. D., sometime Professor of Biblical and Physical Geography in Lafayette College. These prizes are awarded at the end of Freshman year. (See page 124.)

PHYSICAL CULTURE.

HUMAN PHYSIOLOGY.

The lectures on Health to the Freshman Class include the general principles of Physiology and Anatomy, and are thorough and practical, and illustrated by diagrams.

THE GYMNASIUM.

The College has ample ball grounds, tennis grounds, and boating facilities, a light, airy, tasteful gymnasium, thoroughly equipped with the best modern appliances, dressing-room, bath-rooms, etc., and uses a thorough system of physical culture, participated in by all the students, who are required to be in the Gymnasium at set times for class drill. The Gymnasium is also open at given hours for voluntary work. Before entering the Gymnasium each student must be examined by the Medical Director, and if it is found that the regular class exercises are not likely to be healthful for him, other exercises will be prescribed suited to his constitution and condition. All the exercises in the Gymnasium are under the supervision of the Director of Physical Training.

A fine athletic field has recently been purchased and equipped by the Alumni and Easton friends of the College. It adjoins the campus on the west, and affords excellent facilities for all out-door sports.

All athletic sports are under the careful supervision of a committee of the Faculty, of which the Medical Director of the Gymnasium is a member. *No student is permitted to take part in public contests without written permission from his parents.*

CLASSICAL DEPARTMENT.

The Classical Department consists of the historic course in the *Arts*, or *Humanities*, and retains the regular character of that course, which has so long been regarded as the foundation of a liberal education. The course has a fixed curriculum during the earlier years,

but in the latter part of the course latitude is allowed by the introduction of elective studies for the student to select such studies as he deems the best preparation for his subsequent pursuits.

This Department being the usual preparation for the learned professions, including teaching and journalism, special regard is given to the necessities of these professions, so that in addition to being the thoroughly tried means of securing a broad and liberal culture and an approved foundation of Christian scholarship, it is particularly fitted to prepare men for the learned professions. It is also recognized as a desirable preparation for other pursuits, including scientific and technical professions, wherever the circumstances of the student will permit.

The instruction embraces a systematic study of the Bible and the Evidences of Christianity throughout the course, of the Ancient and Modern Languages and their literatures, together with comparative Philology; Pure and Applied Mathematics; Physics, Chemistry, and the Natural Sciences; Rhetoric and Elocution; Logic and Metaphysics; History and Political Science; and Mental and Moral Philosophy.

PHILOSOPHY.

MENTAL AND MORAL PHILOSOPHY.

Professors March and Elmer.

Mental Philosophy is a required study of Senior year, and is pursued under the direction of Prof. Francis A. March. The text-books used are Haven's Mental Philosophy and Baldwin's Psychology, but the students are

required to work up the topics by self-examination, by the study of the investigations of the most eminent authors, and by class discussions. Weekly written essays are also required of every student, in which he is expected to record the results of such special investigations.

Ethics is required during the first term of the Senior year. The text-book used is Seth's *A Study of Ethical Principles*. The course aims to outline the psychological basis of Ethics, the nature of the moral ideas, and the metaphysical implications of morality.

Theism is a required study during second and third terms of Senior year, the text-books being Flint's *Theism* and Hibben's *Problems of Philosophy*. The course seeks to expound the grounds of theistic belief, and to investigate the final problem of metaphysics, *i. e.*, as to the nature of Ultimate Reality. The anti-theistic theories are also taken up, critical attention being given to Agnosticism, Positivism, Materialism and Pantheism.

Logic is a required study in the third term of Junior year. The text-book is Jevon's *Primer of Logic*. This is supplemented by lectures on Mill's theory of Induction, especial attention being given to scientific method.

The history of modern philosophy is offered as a Senior elective in the second and third terms. Lectures are given on the principal philosophers, from Bacon to contemporaneous thinkers. The lectures seek to exhibit the historical and philosophical connections of the various movements of modern philosophy, and to give a critical estimate of them. No text-book is used, but the students are referred to the writings of the masters themselves, and to some of the histories of philosophy, as *Erdmann*, *Uberweg*, *Windelband*, and *Falckenberg*.

HISTORY AND POLITICAL SCIENCE.

ANCIENT HISTORY.

Professors Youngman and Owen.

In connection with the courses in Latin and Greek a very careful survey is given of Ancient History, but especially of the history of Greece and Rome. The topics immediately connected with the authors read are given particular attention, but an attempt is made to bridge the period intervening, and as the authors represent the most important periods of the history of Greece and Rome the result is that the historical accent is rightly placed. Attention is given not merely to the political history of the various periods under discussion but also to the social, literary and philosophical history of each epoch. The close relation which exists between History and Geography is recognized, and a careful study of Classical Geography forms a part of the course.

HISTORY OF EUROPE.

Professor Bloombergh and Mr. Roberts.

An elective course is afforded in the second and third terms of Senior year, which begins with the fall of the Roman Empire and traces the rise and growth of European institutions through the Middle Ages. Emerton's *Introduction to, and History of, the Middle Ages* are used as text-books, and are supplemented by lectures and library work.

During the third term a course of lectures is given to the Seniors by Professor Bloombergh on the Origin and Development of the Institutions of Modern Europe.

These lectures begin with an inquiry into the causes of the Dark Ages, trace the influences which led to the Reformation and the Renaissance, and the influence of the new impulses upon modern thought and action. These lectures while dealing largely with the philosophical side of History are so related to the previous instruction as to rest upon known facts.

CONSTITUTIONAL HISTORY.

THE UNITED STATES.

The President and Mr. Roberts.

An optional course, especially designed to prepare for the required courses in the Constitutional History of the United States, is offered in the first term of the Junior year. This course consists mainly of prescribed reading, with written reports upon the history of the American Colonies, the relations with Great Britain prior to 1775, and the causes and consequences of the Revolution.

The required work begins in the second term of the Junior year with a course dealing with the Constitution from the point of view of its historical development. Fiske's *Critical Period of American History* is used as an introduction to this course, and it is accompanied by a critical study of several important constitutional documents, such as Magna Charta, the Petition of Rights, the Articles of Confederation, and the Ordinance of 1787. Then the Constitution is taken up section by section and studied with reference to its historical development and its subsequent interpretation and construction.

This course is followed in the third term of the Junior year by a course dealing with the constitutional history of the first thirty years under the Constitution, which undertakes to investigate the more important constitutional questions of the early years of the Republic with sufficient thoroughness and care to give the student a firm grasp of a sound method of historical study.

The study of American institutions is interrupted in the first term of Senior year by a course in general constitutional history, but is resumed in the second and third terms with a wider outlook. A more detailed study is now given to the whole subject, with Bryce's *American Commonwealth* as an introduction and general guide. It is supplemented by lectures and discussions.

These three courses are designed to give a broad and intelligent basis for American citizenship, and to prepare the way for original investigation in American history. The Ward Library is rich in material for special studies, and every effort is made to encourage the student to make independent researches.

GENERAL CONSTITUTIONAL HISTORY.

A course in general constitutional history is begun as a required course in the first term of the Senior year and continued as an elective through the second and third terms. It begins with the origin of the State, and following the plan of Woodrow Wilson's *The State*, pursues the development down to the present time. The recitations are supplemented by lectures and reading, with written reports of investigations.

POLITICAL SCIENCE.

The President and Mr. Roberts.

This Department embraces courses in the elements of International Law, and in the origin and development of the State in the first term of Senior year, and in Political Economy in the second term of Senior year, and elective courses by Dr. March in Blackstone's Commentaries.

The course in International Law undertakes to do little more than to exhibit the fundamental principles which govern international affairs, and by the study of a few important cases to show the method of diplomatic procedure. It is especially intended to give the students the information needed to understand current discussions of foreign relations. In the theory of the State, Prof. Woodrow Wilson's book is used, and is supplemented by lectures illustrating the analytical method.

The course in Political Economy at present consists of a rapid survey of the principles, and only limited time is given to the discussion of practical applications of economic theories. Special attention, however, is given to the questions which are vital issues of the day, such as Finance and the Tariff. The utmost care is taken to avoid the teaching of party politics under the guise of Economic Science. At the same time the teaching in this Department recognizes the importance of inculcating honest views on the money question and the right of American citizens to know what can be said for the American policy of Protection both in the abstract and in its actual workings.

All these courses are supplemented by papers, essays

and debates. The Literary Societies and the public debates do much to stimulate interest in the class work, and to give it practical application.

RHETORIC AND ELOCUTION.

The course in Rhetoric includes earlier instruction and praxis in Diction, Figures of Speech and Style, and later in Invention and in the Principles of Rhetorical Criticism; and these applied to required practice in the writing of original essays, orations, and themes.

Besides the study of text-books, weekly written essays are required, and declamations in class or before the College. *Extemporaneous Speaking* is also cultivated. In those studies, such as Mental Philosophy, in which the recitation can be had by topics, students are required to take the floor daily and present an outline of the author's thought. Extemporaneous (unwritten) debates are also had in class. The Juniors, during the third term, and the Seniors deliver unwritten addresses on subjects of their own choice. The other classes speak selected pieces. Great pains are taken to encourage the habit of simple and earnest communication of connected thought.

THE GREEK LANGUAGE AND LITERATURE.

Professor Youngman and Mr. Reichard.

The aim of the Greek course is to be thoroughly grounded in Greek forms, idioms, and syntax—to learn the composition of words, the formation of phrases, and the construction of sentences. In the earlier part of the course there is a daily lesson in the grammar, with a test of the student's ability to apply it to the text just

read. Etymologies and English derivatives are constantly called for.

The best passages of the best representative authors are translated into the best attainable English. In poetry there is a study of Homer, Sophocles, and Aristophanes; in prose, of Herodotus, for history; of Æschines and Demosthenes, for oratory. For ethical questions there is a study of Socrates in the *Memorabilia* and the *Apology*.

Attention is directed to Greek life, education, faith, religion, and habits of thought and expression, as compared with our own. The old Greek citizen and the modern American citizen are brought face to face.

Essays also are called for giving the results of the students' researches. When *De Corona* is read there is a special class debate on the relations of Æschines and Demosthenes with Philip. When Homer is read there are references to the Bible for comparison of faith, religion, and form of expression. There is an attempt to bring the students to an intelligent appreciation of the beauty and grace and force in Greek literature to cultivate the taste, regulate the heart, and discipline the mind.

THE LATIN LANGUAGE AND LITERATURE.

Professor Owen, Messrs. Little and Bergstresser.

It is the aim of this Department to give the students an intelligent acquaintancè with the language, literature, and institutions of Rome, and qualify them for the efficient treatment of these subjects as teachers, or for the further scholarly pursuit of these and kindred studies after graduation if they should be so disposed. We

try to unite accuracy in details with facility in reading within the limits of a reasonable range.

The authors read are those which present the Latin language and literature at different stages, but mainly at its best; and the method of pursuing them is based on the belief that the best way to master these great works of genius, whether in their linguistic or literary aspects, is by the minute and careful study of selected passages. Such passages are examined, therefore, clause by clause and word by word, the common matters of grammar and idiom coming first. In the earlier parts of the course there is a grammar lesson with each recitation, and the application of grammatical principles to the text in hand forms an important part of the daily drill. The elementary principles of phonology and a review of etymology and general syntax are thus treated in the Freshman year, and in the Sophomore year a more exhaustive study of moods and tenses and the formation of words. Then come questions of style, the author's habits of diction, his use of synonyms, rhetorical forms of speech, the arrangement of words, etc., and, if poetry, the significance of metrical forms.

Literary and historical allusions are looked up, also mythology, biography, geography, antiquities, everything in short which can help to clear up the author's meaning.

Aside from these incidental inquiries in connection with every text, various collateral branches of study are regularly pursued from term to term. There is the topical study of history in connection with Livy and Cicero (*De Oratore*); of antiquities in connection with Horace; of literature in connection with Latin Hymns

and Tacitus; and of the history of philosophy in connection with Cicero (*De Officiis*).

A brief course in Roman archæology is also given, illustrated by an extensive collection of Roman photographs.

It is kept in mind, also, that the training in this Department should be practically helpful and valuable to those who are to speak and write the English language. With a view to cultivate the power of expression, besides the oral work of the class-room there are frequent exercises in writing, in which it is sought to faithfully render the author into the English of our literary standards.

In preparation for the course in Comparative Philology given in the Senior year by Professor March, attention is called to the history of inflection, the origin and significance of the affixes of case, number, tense, mood, voice; to the physiology of speech, the regular weakenings of sound, and a comparison of forms in the Latin, both etymological and syntactical, with the corresponding forms in the Greek and English.

The Latin is pronounced according to the Roman method. Harper's New Latin Lexicon is used; Allen & Greenough's Latin Grammar (new edition) is used as a text-book; Lane and Gildersleeve, and the larger grammars of Madvig and Roby will be found helpful for references.

THE HEBREW LANGUAGE.

Professor Elmer.

Hebrew is an elective study in the second and third terms of the Senior year. As preparatory to more ad-

vanced work, special attention is given to the etymological principles of the language, and also to the inflexions and laws of euphonic changes. To apply these principles, and to acquire a good working vocabulary, portions of Old Testament History are read, and translations made from English into Hebrew. The text-book used is Prof. Green's Elementary Hebrew Grammar.

ENGLISH LANGUAGE, COMPARATIVE PHILOLOGY.

Prof. Francis A. March, Sr., and Prof. F. A. March, Jr.

For training in speaking and writing English correctly every student is required to hand in two themes in every term of his college course. Many of them are read in class and criticised as time allows. In this work professors of all departments take part. It is desired that students in each department shall write on subjects connected with it in the words and phrases current among experts, and know the precise meaning of these words and phrases. In these matters the professors in each department are authorities.

The professors of foreign languages recognize that translation into English is training in English as well as in the foreign language, and written translations are required partly in the interest of English study.

The study of the language in literature is different from the training just described. Its immediate purpose is the interpretation of masterpieces, the rethinking of the thoughts of master minds. It needs all the philological knowledge which can be had to clear up and illuminate the language. Such study also furnishes the materials and invites the inductions of systematic and

historical philology and theories of the growth of literature. It must be largely comparative study, and in the Classical Course it is thought best to defer it until the student has become acquainted with other languages. It is begun in the second term of Junior year with the study of Milton's "Paradise Lost." Anglo-Saxon is taken up at the same time and four recitations per week in each are prepared, the two languages being heard in immediate succession within a college hour.

In the third term Shakespeare and Anglo-Saxon are studied, and recited four times a week, as in the second term, and there are optional courses and prize examinations on Shakespeare in general, and English before Chaucer.

In the Senior year a general survey of English literature is made (two hours per week) in the second term. Four hours a week of the third term are devoted to Comparative Philology, summing up the results of former special studies and arriving at laws of language in general. For further details see page 57.

MODERN LANGUAGES.

*Professors Bloombergh, F. A. March, Jr., Messrs. Raschen
and Reichard.*

The work in this Department is based upon the view that the aim of the American college is not to make specialists but to give a many-sided, well-rounded education; hence the different branches of the curriculum must in their very nature be co-ordinated with each other and the time allotted to each limited. It follows from this co-ordination and from the limited time al-

lotted to each of the several branches, that in the pursuit of linguistic studies in the modern Continental languages only such a method is possible that permits us in the time given to reach the result which it is proposed to achieve. This result is simply to give to the student the beneficial mental development resulting from a thorough linguistic training; a result formerly reached by the exclusive study of the dead languages and now sought by the study both of ancient and modern languages, either in conjunction, as in the Classical and Latin Scientific Courses, or by the modern languages exclusively, as in the General Scientific and Technical Courses. And, secondly, to acquaint the student with the masterpieces of modern literature, scarcely, if at all, inferior in literary value, and certainly not less important for the proper equipment of the cultivated scholar, than the works of the great masters of Greek and Latin. The method used may be regarded as a combination of the scientific and the historical methods. The scientific method being used to lay the foundation, and the historic to broaden and develop the results of the earlier method.

We propose—

(a) To teach the present status of the grammar and vocabulary of the languages studied;

(b) To show how they acquired their present status;

(c) To introduce the study of the best writers of Germany and France in a progressive series, with special attention to contemporary literature, and, in a limited degree, to extend the same method to the literature of Spain and Italy;

(*d*) To trace the development and give some account of the principal writers whose works are studied.

In fine we purpose, so far as time will permit, to give careful and systematic instruction in grammar and phonetics, in the literature of the various important periods, together with the literary history of each epoch, with special reference to the German and French languages, but as far as possible keeping in view the relations between the languages, and particularly to English.

In instruction in grammar decided preference is given to the shortest possible text-books, such as Ahn's Synoptical German Grammar and Edgren's French Grammar. The ground of this preference is that a short grammar enables the student to begin reading the language at an earlier period, and the success of syntactical studies, which are but applied logic after all, depends less on the lifeless memorizing of rules of syntax than on the comments of the teacher in the class-room.

The required study of French and German in the Classical Course is at present limited to a single term each, there being four recitations each week. An elective course in German and French is offered in the second and third terms of the Senior year; and in the second term of the Junior year students may pursue Italian or Spanish.

It will be seen that the study of German and French is largely linguistic, though the amount of these languages taught is sufficient, with the previous information and training of the students in Latin, Greek, and English, to give a fair reading knowledge. Those who take the Senior electives generally possess a fair working knowledge of one or both of these languages.

MATHEMATICS.

Professor Hardy and Messrs. Little and Bergstresser.

The course in Mathematics embraces during the Freshman year the continuation of the study of Algebra, begun in the preparatory school (including a brief review of simple equations), to which the entire work of the first term in this Department (four hours per week) is given. In the first term Freshman year all have Algebra four hours per week. In the second term Division A has Algebra and Geometry and Trigonometry each three hours per week. Division B has Algebra two hours per week and Geometry four hours per week in the second and third terms of the Freshman year.

In the Sophomore year Trigonometry and Mensuration occupy four hours per week during the first term. In the second term five recitations per week are given to the study of Analytical Geometry. The course is begun by the drawing of a large number of curves from their equations, so that from the first the student may see that the properties of a curve may be studied by means of its equation. After that the demonstrations of the proposition usually given in the Analytical Geometries are constructed with the same strictness of reasoning, and every step in them is proved with the same logical rigor as in Euclid. A clear and correct figure showing every point and line mentioned in the demonstration is always required. It is hoped that at the conclusion of his demonstration the student shall see clearly and at once the meaning of every symbol in the equation obtained, and shall be perfectly sure of the truth of his conclusion. Training in clearness and accuracy of thinking, and in

the effective expression of thought, is regarded as of the highest importance. Calculus is taken up in the third term of the Junior year, two hours per week being devoted to it that term, and two in the first term of the Senior year. The discussions of Differential and Integral Calculus are made as far as possible to illustrate the essential oneness of the two branches of the Calculus. A further course in higher branches of Mathematics is offered as an elective in the second and third terms of the Senior year. Field work in Surveying occupies a portion of the time during this term, amounting to an equivalent of one hour of recitation work in each week, that is, three hours of actual field work.

ASTRONOMY.

Professor Hardy.

The study of astronomy is begun in the first term of the Senior year and continued through the second. It is illustrated by practical work in the Observatory with the various astronomical instruments. The course includes a thorough study of the points and lines of the Celestial Sphere; a short discussion of the construction and use of the principal astronomical instruments; of Parallax and Refraction, and of the methods of determining Latitude, Time, and Longitude. Then follows a careful study of the Earth as a member of the Solar System; of the Moon; of the Sun, including the Spectroscopy of the Sun; of Eclipses; of the general laws and construction of the Solar System, and of the Planets and their Satellites. This is followed by a brief discussion of the methods of determining the Sun's Horizontal Parallax and a fuller discussion of Comets, Meteors, and the fixed

Stars, including the Spectroscopy of these bodies. The course ends with a study of the general structure of the Stellar Universe and a discussion of the Cosmogony and the Nebular Hypothesis.

PHYSICS.

Professor Moore and Mr. Post.

The studies in this Department in all the courses occupy four recitations or lectures a week for a year, beginning with the third term Sophomore year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments and laboratory work for technical students. In other subjects the study of the text-book is accompanied with illustrative lectures, aided by a valuable collection of apparatus and charts, which is continually enlarged and improved.

The course begins with an experimental demonstration of the fundamental principles of Statics and Kinetics in connection with a mathematical treatment of the subjects. This is followed by very full lectures on Heat, Magnetism, Electricity, Sound, and Light. Daily written and oral examinations impress the laws and facts thus presented upon the student.

For the advanced studies of the technical courses in Analytical Mechanics and allied topics of Mechanical and Electrical Engineering, see pages 72 and 86.

CHEMISTRY.

Professor Hart and Messrs. Turrentine and De Long.

The study in this Department begins with a course of lectures on General Chemistry, combined with the study

of a text-book. In connection with these lectures each student is required to work in the Laboratory under the direction of the Professor. In the Senior year an elective course in Qualitative Analysis is also offered. Students in full standing who receive permission from the Faculty may also work in the Laboratory outside of recitation hours, if they so desire.

BIOLOGY.

Professor Davison.

The work in Botany is entirely elective. A general course in practical, morphological, and physiological Botany is open to the Seniors in the Fall term.

The College Herbarium is extensive and particularly rich in North American species, ranking in this respect among the best in the country. In its creation Dr. Porter was actively engaged for nearly half a century. It has been gradually built up by personal collection, gift, exchange, and purchase, and well represents the growth of this branch of the science in the United States during this period of time. It contains the type-specimens of the species described by him. A library, also, rich in the literature pertaining to the subject, has been accumulated in the same way, and the letters received in correspondence with distinguished naturalists have been preserved. For field work in Botany the region around Easton possesses unusually fine material.

The courses in Biology are elective only, and consist of work throughout the Junior and Senior years. They are open for election to Classical, Latin Scientific, and General Scientific students. In order to meet the double

purpose of a professional preparation and general culture, the courses are so arranged as to provide in each the special knowledge required without sacrificing the ends of general culture and discipline, which is sought in all the undergraduate courses. Those not wishing to take the complete course may begin their work the first or third term of the Junior year. No one will be permitted to enter the course later than the first term of the Senior year, and those who begin the study in that year should pursue it throughout the year, as the course is continuous.

The work in this Department begins with the Junior and extends through the Senior year, one term being devoted to each of the following branches: Mammalian Anatomy, Histology, General Biology, Vertebrate Morphology, Human Anatomy and Physiology, and Embryology.

The course in Mammalian Anatomy includes the preparation and preservation of animals, both for museums and dissecting purposes, together with a comparative study of the various systems in the cat, dog, rabbit, and opossum, after the student has familiarized himself with the structure and relative location of the organs in a typical mammal. Dissections, demonstrations, drawings, recitations, and reports by the students serve not only as a valuable discipline in the use of language, manipulation, and accurate observation, but supply the investigator with a store of practical facts in logical order. Additional lectures and demonstrations are also given by the instructor.

The course in Histology is eminently practical, treating of the hardening, preserving, embedding, section

cutting, and staining of all the important tissues, and giving a thorough knowledge of the use of the microscope. Each student is required to mount for permanent preservation at least fifty specimens, and to deposit with the Laboratory a sample of charts prepared from specimens thus mounted which he has used in his demonstrations and reports before the class.

General Biology is arranged to give a concise knowledge of the lower forms of animal and plant life, including a brief survey of Bacteriology. Special attention is given to the life-history of the invertebrates and their economic relation to the human race.

Vertebrate Morphology gives an opportunity for the comparative study of the various systems and organs in the vertebrata. *Amphioxus*, *petromyzon*, carp, frog, turtle, pigeon, cat, and dog are among the forms dissected and otherwise studied. The manner of development of the animal kingdom is brought prominently before the student by specially prepared charts and diagrams.

Human Anatomy and Physiology are taught by experiments, drawings, reports, and recitations by the students, and lectures, demonstrations, and quizzes by the instructor. Actual dissection of the cadaver is not required. Instead of this, the study of the various organs of the human body preserved in alcohol, and the study of a life-size French manikin, serve to give the investigator an adequate knowledge of the structure and functions of the human organs.

In Embryology the development of the chick embryo at different stages is carefully studied. The eggs of aves, amphibia, and pisces are incubated in the labora-

tory, and investigated during their development. The study of Embryology is a fitting conclusion to the Biological series, as here one may see the entire history of the animal kingdom enacted in a single species.

A large laboratory and four small ones, well equipped with microscopes, microtomes, water baths, Koch's vegetation incubator, re-agents, numerous skeletons, etc., afford ample facilities for the above work.

Those taking the above-described course in Biology, together with the required number of hours in Chemistry, Physics, and Botany, will be given certificates admitting them to the second year's work in most of the medical schools of this country.

GEOLOGY AND MINERALOGY.

Professor Peck.

This course, which is also open to students of the General and Latin Scientific courses, begins in the third term Junior year with a brief discussion of rock-forming minerals and the way they unite to form igneous, metamorphic, and sedimentary rocks. This is a necessary preparation for the course in Geology, which continues as an elective throughout the Senior year. In this Senior elective course Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed, and the first term of the year is devoted to Dynamical, Structural, and Physiological Geology. Class-room work is supplemented by excursions into the region about Easton, which abounds in a variety of features of great geological interest.

The second term of the year is devoted to Historical Geology, during which especial attention is paid to the succession of life forms. The work of the class-room is

supplemented by a careful study of an excellent working collection of fossils now in the possession of the Department.

The third term is occupied in practical field work in Geology, in mapping, and in constructing geologic sections of the region about Easton.

Among the teaching appliances of the Department may be mentioned an excellent study collection of igneous rocks, consisting of about eight hundred specimens, many of which have their corresponding thin sections for microscopic study. These are added to from time to time as opportunity affords. They are all accurately labeled. Also an equally good collection of about twelve hundred specimens, illustrating Stratigraphical Geology, all well labeled; numerous physiographical and geological maps; sixty-four large palæontological charts, made under the direction of Prof. V. Zittle, of the University of Munich; an excellent stereopticon, with about seven hundred slides, illustrating a great variety of geological and palæontological subjects; and numerous wooden, glass, and plaster models for class-room work in Geology and Mineralogy.

SYNOPSIS.
CLASSICAL COURSE.

FRESHMAN YEAR.

	HOURS.
MATHEMATICS. <i>First Term.</i> —Algebra. A brief review of the requirements of admission and a continuation of the study of equations	4
<i>Second Term.</i> —Algebra, and Geometry, Plane and Solid	6
<i>Third Term.</i> —Algebra completed, Solid Geometry completed, Division B. Geometry, Trigonometry, Division A	6
LATIN. <i>First Term.</i> —Livy: Books I and XXI; Latin Prose; Early Roman History, and the second Punic war	4
<i>Second Term.</i> —Horace: Odes; Prosody; Latin Prose...	4
<i>Third Term.</i> —Horace: Satires and Epistles; Roman Antiquities. Throughout the year a review of Syntax and Etymology; exercises in written translation....	4
GREEK. <i>First Term.</i> —Xenophon: Memorabilia; prose composition; classical geography	6
<i>Second Term.</i> —Herodotus: select passages; old Greek life	4
<i>Third Term.</i> —Homer: The Iliad; select passages from the first six books; Greek literature	4
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible throughout the year	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations, Themes, and Forensics are required.	

NOTE.—The authors read are changed from time to time, and the passages selected for study vary frequently. Those named above are now used and give a fair idea of the work done.

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B.....	4
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ASTRONOMICAL OBSERVATORY

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

HOURS.

Second Term.—Plane Analytical Geometry, Division B.

Plane and Solid Analytical Geometry, Division A.... 5

PHYSICS. *Third Term.*—Elementary Mechanics (Moore) 4

LATIN. *First Term.*—Cicero: De Oratore; the subjunctive mood; Roman History from the Gracchi to the Empire 4

Second Term.—Christian Latin: March's Latin Hymns; derivation and formation of words; early Roman literature 4

Third Term.—Cicero: De Officiis; Topics in the History of Philosophy 2

GREEK. *First Term.*—Homer; The Iliad; select passages from Books XVIII to XXIV; Homer and the Bible compared 4

Second Term.—Plato: The Apology and Crito; select passages 4

Third Term.—Æschines against Ctesiphon 4

Throughout the year careful attention is given to the social and political history of the period suggested by the text.

ENGLISH LANGUAGE. *First Term.*—Trench: The Study of Words 2

Second Term.—Rhetoric 1

FRENCH. *Third Term.*—Grammar, Composition, and Translation of easy select passages from modern writers 4

THE BIBLE.—The Greek Testament: The Book of Acts.... 1

Throughout the year.—Declamations, Themes, and Forensics.

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity..... 4

LATIN.—Tacitus: Agricola, and selections from the Annals. Roman Literature of the Silver Age 2

GREEK.—Demosthenes: On the Crown; History 4

GERMAN.—Grammar, Composition, and Translation from modern authors 4

	HOURS.
THE BIBLE.—The Epistle to the Romans in Greek.....	1
BIOLOGY.—Elective with Latin (in connection with the Histology of the next term): Mammalian Anatomy	2

Second Term.

PHYSICS.—Acoustics, Optics	4
GREEK.—A play of Æschylus or Sophocles	2
ENGLISH.—Milton	} 4
ANGLO-SAXON.—Grammar and Reader (March).....	
HISTORY.—Constitutional History of the United States ..	2
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
THE BIBLE.—The Epistle to the Romans in Greek	1
ROMANCE LANGUAGES.—Spanish or Italian, optional.....	2
BIOLOGY.—Histology: Elective with Greek	2

Third Term.

LATIN.—Roman Satire: Juvenal; Archæology, Roman remains	2
ENGLISH.—Shakespeare	} 4
ANGLO-SAXON	
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
LOGIC.—Jevons	2
THE BIBLE.—The Epistle to the Romans in Greek	1
Declamations, Themes, and Debates throughout the year.	
ELECTIVES.—Each student to choose two periods from the following:—	
MATHEMATICS.—Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History of the United States..	2
BIOLOGY.—General Biology	4

SENIOR YEAR.

First Term.

ASTRONOMY	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4

	HOURS.
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn) ..	1

ELECTIVES.

Four hours to be chosen from the following:—

INTERNATIONAL LAW.—Lawrence	2
LATIN.—Lucretius	2
MATHEMATICS.—The Calculus	2
GEOLOGY	2
BIOLOGY.—Vertebrate Morphology	4
BOTANY	2

Second Term.

MENTAL PHILOSOPHY.—Continued	2
THEISM.—Flint	2
POLITICAL ECONOMY.—General Principles (Walker)	2
ENGLISH LITERATURE	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.—(Each two hours.)

Six hours to be chosen from the following:—

BLACKSTONE.—Commentaries on the Law of England.		
HEBREW.—Grammar and reading from Genesis.....	4	
GREEK.	{	The classes are allowed to select the authors read, so that they vary from year to year. Advanced instruction in grammar and idiom is given in all classes.
FRENCH.		
GERMAN.		
LATIN.		

ASTRONOMY.

CHEMISTRY.—Advanced instruction in Laboratory.

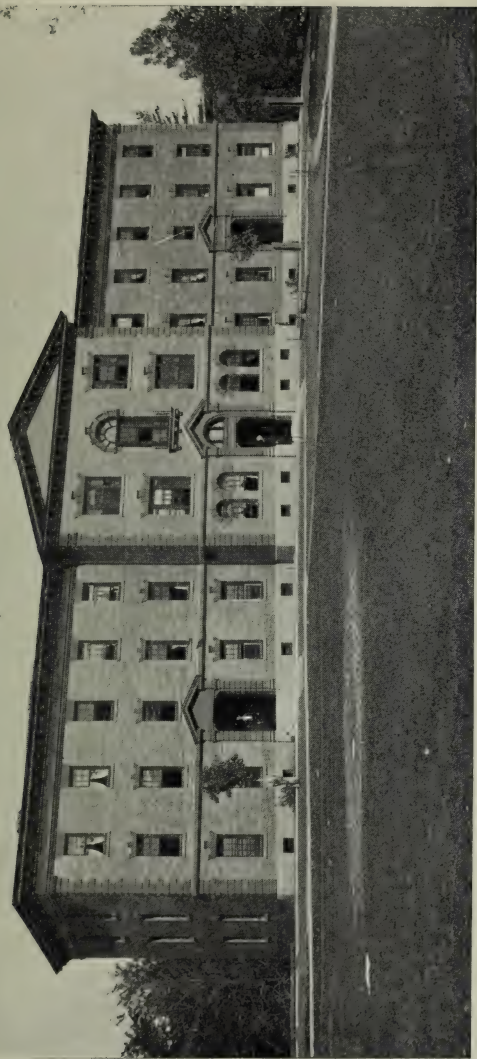
GEOLOGY.—Palæontology.

CONSTITUTIONAL HISTORY.—United States (Bryce).

HISTORY OF PHILOSOPHY.—Greek and Modern.

MATHEMATICS.—Solid Analytical Geometry or Theory of Functions.

	HOURS
HUMAN ANATOMY and PHYSIOLOGY.—Elective four periods and substituted two periods for English Literature..	6
PEDAGOGICS	2
<i>Third Term.</i>	
COMPARATIVE PHILOLOGY	4
HISTORY.—Lectures on the Development of European In- stitutions	2
PHILOSOPHY.—Problems of Philosophy (Hibben).....	2
BIBLE	1
ELECTIVES.—Same as Second Term; except	
MATHEMATICS.—Solid Analytical Geometry or Elliptic In- tegrals	2
BIOLOGY.—Embryology	6
<i>Throughout the year</i> —Themes and Extemporaneous Speaking.	



MARTIEN, FAYERWEATHER, AND POWELL HALLS

PARDEE SCIENTIFIC DEPARTMENT.

This Department was organized in 1866, in accordance with the conditions of a gift from Ario Pardee, Esq., of Hazleton, Pa. The original organization has been from time to time greatly enlarged and extended, largely through the continued munificence of the founder. There are at present two General Courses of study, the Latin Scientific and the General Scientific, and four Technical Courses.

LATIN SCIENTIFIC COURSE.

This course, which leads to the Degree of Bachelor of Philosophy, was designed to meet the wishes of those who desire to pursue a course of liberal study, but will not study Greek. It therefore is the same as the Classical Course except that the time devoted to the study of Greek in that course is given to the pursuit of studies mainly of a scientific character, but throughout the general course of this school great importance is paid to the study of the English language under the special direction of Professor Francis A. March. In the Freshman year the substitutes for Greek are German and English Language and Composition, while in the Sophomore they are various English studies. The method of instruction in each Department is fully dealt with under the course of study in the General Scientific Course. The synopsis which follows will sufficiently explain any other peculiarities of the course.

SYNOPSIS.

LATIN SCIENTIFIC COURSE.

FRESHMAN YEAR.

	HOURS.
MATHEMATICS. <i>First Term.</i> —Algebra	4
<i>Second Term.</i> —Algebra and Geometry, Plane and Solid	6
<i>Third Term.</i> —Algebra and Geometry, completed, Division B. Geometry and Trigonometry, Division A....	6
LATIN. <i>First Term.</i> —Livy: Books I and XXI. Latin Prose. Roman History	4
<i>Second Term.</i> —Horace: Odes; Latin Prose.....	4
<i>Third Term.</i> —Horace: Satires and Epistles. Roman Antiquities	4
Throughout the year a review of Syntax and Etymology and Exercises in Composition.	
ENGLISH	2
GERMAN.—Grammar and selections from contemporary prose: <i>First Term</i> , 4 hours; <i>Second and Third Terms</i> , 2 hours.	
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible, throughout the year.....	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B.....	4
<i>Second Term.</i> —Plane Analytical Geometry, Division B. Plane and Solid Analytical Geometry, Division A....	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
LATIN. <i>First Term.</i> —Cicero: De Oratore	4
<i>Second Term.</i> —Christian Latin. March's Latin Hymns. Roman History and Literature	4
Cicero: De Senectute	2
<i>Third Term.</i> —Cicero: De Officiis; Topics in the History of Philosophy	2

HOURS.

ENGLISH LANGUAGE. <i>First Term.</i> —Trench: The Study of Words (2) ; and Bunyan's Pilgrim's Progress (4)	6
<i>Second Term.</i> —Rhetoric (1). Spenser: The Faerie Queene (2)	3
<i>Third Term.</i> —Chaucer: The Canterbury Tales	4
FRENCH. <i>Third Term.</i> —Grammar, composition, and translation	4
THE BIBLE.—The Book of Acts. (One hour per week throughout the year)	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
LATIN.—Tacitus: Agricola and selections from the Annals. Roman Literature of the Silver Age	2
ENGLISH.—Bacon	4
GERMAN.—Grammar and Translation. (From 1903, FRENCH)	4
THE BIBLE.—The Epistle to the Romans in German	1
BIOLOGY.—Elective, as in Classical Course: Mammalian Anatomy	2

Second Term.

PHYSICS.—Optics, Acoustics	4
ENGLISH.—Milton	} 4
ANGLO-SAXON.—Grammar and Reader (March)	
FRENCH.—Classic Authors. (From 1903 only 2 periods)	4
HISTORY.—Constitutional History of the United States..	2
THE BIBLE.—The Epistle to the Romans in German	1
CHEMISTRY.—Lectures, Text Book and Laboratory Work	2

BIOLOGY.—Elective with French: Histology	2
ROMANCE LANGUAGES.—Spanish or Italian (optional)	2

Third Term.

LATIN.—Roman Satire: Juvenal and Persius	2
ENGLISH.—Shakespeare	} 4
ANGLO-SAXON	

	HOURS.
CHEMISTRY.—Lectures, Text Book and Laboratory Work	2
LOGIC.—Jevons	2
FRENCH	2
THE BIBLE.—The Epistle to the Romans in German.....	1
ELECTIVES.—Four hours to be chosen from the following:—	
MATHEMATICS.—The Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History	2
BIOLOGY.—General Biology	4
<i>Throughout the year</i> —Declamations, Themes, and Debates.	

SENIOR YEAR.

First Term.

ASTRONOMY.—Practical Astronomy, with work in Observatory	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.

LATIN.—Lucretius	2
MATHEMATICS.—The Calculus	2
POLITICAL SCIENCE.—International Law	2
BOTANY	2
GEOLOGY	2
BIOLOGY.—Vertebrate Morphology	4

Second Term.

MENTAL PHILOSOPHY.—Haven, Baldwin	4
THEISM.—Flint	2
ENGLISH LITERATURE	2
POLITICAL ECONOMY: The General Principles (Walker) ..	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1

Six hours of the following *electives* are to be chosen:—

BLACKSTONE.—Commentaries on the Law of England....	2
HEBREW.—Grammar and Reading from Genesis	4

		HOURS.
GERMAN	} The class is allowed to choose from a number of authors what authors they will read.....	2
FRENCH		
ASTRONOMY	.....	2
METEOROLOGY	.....	2
CHEMISTRY.—Advanced instruction in Laboratory work..		2
GEOLOGY.—Palæontology	.....	2
POLITICAL SCIENCE.—Elements of Jurisprudence	.....	2
CONSTITUTIONAL HISTORY.—United States (Bryce)	.....	2
HISTORY.—Middle Ages	.....	2
HISTORY OF PHILOSOPHY.—Greek and Modern	.....	2
MATHEMATICS.—Solid Analytical Geometry or Theory of Functions	.....	2
SANITARY SCIENCE	.....	2
BIOLOGY.—Human Anatomy and Physiology	.....	6

Third Term.

COMPARATIVE PHILOLOGY	.....	4
HISTORY.—The Development of European Institutions	....	2
PHILOSOPHY.—Problems of Philosophy (Hibben)	.....	2
BIBLE	.....	1
ELECTIVES, as above, except Embryology for Human Anatomy and Physiology	.....	6
<i>Throughout the year</i> —Themes, Forensics, and Debates.		

GENERAL SCIENTIFIC COURSE.

This course leads to the degree of Bachelor of Science, and consists of a curriculum in which Mathematics, the Modern Languages and their Literatures, especially English, and the Natural and Physical Sciences receive principal attention. It includes, however, the more general studies of the Arts Course, such as History, Logic and Rhetoric, Mental and Moral Philosophy.

The Mathematics of this course is the same as the Mathematics of the Technical Courses. French and German are begun in the Freshman year and are pur-

sued with great breadth and particularity. The student's attention is directed to the study of the literatures of these languages in the endeavor to supply, so far as may be possible, the liberal culture ordinarily to be obtained only by the classical studies, but particular stress is laid upon the very thorough-going course in English, a description of which follows:—

ENGLISH LANGUAGE AND LITERATURE.

Professors Francis A. March and F. A. March, Jr.

In the Freshman Class there is, first of all, a thorough drill in Analysis, Parsing, and the Syntax of sentences. This is the basis of the future work, and a mastery of the general principles of Syntax, and skill in the solution of familiar idioms is brought constantly into requisition. Then before the more advanced work in Philology is undertaken, other languages are studied. French and German (as in the Classical Course Latin and Greek) come in as parts of the organized scheme of linguistic study, and are so pursued as to become a means of special culture in English.

Sophomores take up in the first term Trench on the Study of Words and Bunyan's Pilgrim's Progress; in connection with which English Grammar is studied. The Grammar subjects for this term are Syntax, Grammatical Equivalents, Rhetorical Forms, and Historical Elements. On each, daily recitations are heard, and the lessons learned are constantly illustrated by the text under review. The whole story of the Pilgrim's Progress is read, the allegorical meaning called for part by part, and salient doctrinal points noticed.

The staple of daily drill, however, is found in connection with the minute and careful treatment of selected passages. These are studied clause by clause and word by word. The Syntax is first made clear, then words are taken up; synonyms and phrases grammatically equivalent are brought into comparison, and the student is taught to feel an intelligent preference for one or another form of expression, as it may promote perspicuity, liveliness, or other traits of a clear and vigorous style. In the treatment of single words, also, the German and French are called for, and as far as practicable in the Scientific Course the Latin. The laws of change, the derivation, the root, the radical idea, kindred words, the primary meaning, changes in the meaning with the connection of thought, together with such other lines of inquiry as are suggested by Trench, as indications of history, character, moral suggestions, and the like; poetical forms of frequent occurrence are also specially noted, and the collocation of words discussed, both with respect to syntax and the rythmical cadences of speech.

In connection with this daily drill, the life and times of Bunyan are discussed in writing by each member of the class, and his diction compared with that of other standard works, and especially with the Bible. In this part of the work students are directed by questions and references, but are expected to look up information everywhere.

This system of daily drill on the best passages, reports on other readings, and weekly essays on topics growing out of the discussions of the life and times of the author, is found to lead the student on by sure and rapid steps to an intelligent appreciation of the author's works, his

place in literature, and on the whole to the best mastery of his genius.

The same general plan is pursued progressively through the course, with changes, from term to term, in the topics embraced in the drill.

The Sophomores (second term) read Spenser's *Faerie Queene*, with the same concentration upon representative passages, the special drill topics being derivation, romance of chivalry, and Spenserian stanza. In the third term Chaucer (*Canterbury Tales*) is the basis of work. Several of the tales are read and discussed, but the famous Prologue is the special subject of study and philological drill. All the results of previous works are kept constantly in review. This is an emphatic feature of the method. "A line of questions once begun is always kept up." The special drill topics this term are Phonetic Elements, Orthographic Elements, a review of Historical Elements, and Criticism of Uncertain Text.

The Juniors (first term) take for philological study selected essays of Bacon; they prepare reports and criticisms of others of his works, and of his character, life, and times, in weekly written papers. During the second term they study Anglo-Saxon. They also read Milton's *Paradise Lost*. The Classical, Latin Scientific, and General Scientific Juniors here recite together (as they do in all subsequent Anglo-Saxon and English studies of the course). The philological study is mainly directed to the deduction of English words and forms from Anglo-Saxon. The paradigms and the text read are examined word by word in this view. Special objective points are Poetical Forms and Epic Art. In the third



JENKS BIOLOGICAL LABORATORY.



APPROACH TO LAFAYETTE COLLEGE.

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term Anglo-Saxon is continued, and Shakespeare's play of Julius Cæsar is read. The philological study is used mainly to clear up, enrich, and impress the thoughts of Shakespeare. The characters and the structure of the play is studied. Weekly written papers are required from each student upon selected topics connected with Shakespeare's life and times, his genius, his dramatic art and the like.

In the Senior year one term is given to a rapid and general survey of English literature by means of a compendium and class discussions, and conversations, and a representative work of a representative author, selected by the professor, is studied with a view to more extended researches in philology and criticism, and to one elaborate essay by each member of the class, to be handed in at the close of the term. What is known as the F. A. March Prize is awarded on the basis of this term's work. During the third term, Senior year, Professor Whitney's Lectures on Language are studied. The work of the entire course in Comparative Philology is reviewed and co-ordinated, and advanced work pursued by means of lectures and class discussions.

HISTORY.

The President and Mr. Roberts.

In this course, a course in the Introduction to the Middle Ages Emerton and the History of the Middle Ages, with special reference to the development of European institutions, is given in the third term of Sophomore year.

All the courses in History and Political Science de-

scribed under the Classical Course are also open to students of this Department.

SYNOPSIS.

GENERAL SCIENTIFIC COURSE.

FRESHMAN YEAR.

	HOURS.
MATHEMATICS.—Algebra, Trigonometry, Mensuration, and Analytical Geometry	4-5-5
ENGLISH.—March's Method. Grammar	2
FRENCH.—Grammar, composition and translation. (Third term)	2
GERMAN.—Grammar, composition and translation	2
CHEMISTRY.—Text-book, Lecture, and Laboratory work in Elementary and Organic Chemistry. (Four hours first term, two hours second and third terms).....	4-2-2
DRAWING.—Industrial Drawing. (<i>Each Term.</i>)	2
THE BIBLE.—Old Testament in English and Coleman's Geography of the Bible. (One hour throughout the year.)	1
HYGIENE.—Lectures.	
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Analytical Geometry and Differential Calculus	4
<i>Second Term.</i> —Differential and Integral Calculus	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
ENGLISH. <i>First Term.</i> —Trench on the Study of Words.	
Bunyan: The Pilgrim's Progress	6
<i>Second Term.</i> —Rhetoric. Spenser: The Faerie Queene	3
<i>Third Term.</i> —Chaucer: Canterbury Tales	4
FRENCH AND GERMAN.—Language and literature	4
HISTORY.—Middle Ages	2
THE BIBLE.—The Acts of the Apostles in French	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

HOURS.

PHYSICS.—Heat, Electricity, Magnetism, Optics, Acoustics. <i>First and Second Terms</i>	4
ENGLISH.—Bacon, Milton, and Shakespeare. (Four hours per week throughout the year)	4
ANGLO-SAXON.—March's Grammar and Reader. (Four hours per week second and third terms).....	4
FRENCH AND GERMAN. (Two hours per week each through- out the year).....	2
LOGIC.—Jevons	2
BIOLOGY. <i>First Term</i> .—Mammalian Anatomy	4
HISTORY.—Constitution of the United States. (Second term.)	2
THE BIBLE.—New Testament Epistles in German	1

ELECTIVES.

MATHEMATICS.—Calculus	4
HISTORY. <i>Third Term</i>	2
GEOLOGY. <i>Third Term</i>	4
BIOLOGY:— <i>Second Term</i> .—Histology (with French)	2
<i>Third Term</i> .—General Biology	4

SENIOR YEAR.

ASTRONOMY.—Practical and Theoretical. (First term.)..	2
MENTAL PHILOSOPHY. <i>First and Second Terms</i>	4
MORAL PHILOSOPHY AND THEISM	2
COMPARATIVE PHILOLOGY. <i>Third Term</i>	4
POLITICAL ECONOMY. <i>Second Term</i> (Walker)	2
MODERN LANGUAGES AND LITERATURES. (Throughout the year).	4
BIBLE	1
ELECTIVES, as in the Latin Scientific Course. <i>Throughout the year</i> —Themes and Extemporaneous Speaking.	

DEPARTMENT OF ENGINEERING.

There are at present embraced in the curriculum three courses in ENGINEERING: Those of Civil, Mining, and Electrical Engineering. The location of the College is peculiarly favorable for such engineering schools. The city of Easton is a centre of railroads and canals, while bridges, foundries, pipe works for water and gas, cement works, rolling mills, repair shops, and many other industrial works are near at hand. Mines of iron, anthracite coal, and zinc are easily accessible, and extensive quarries of limestone, steatite, and slate are to be found in the immediate vicinity, and afford excellent opportunities for the study of mining operations. The demand, created by the great number of mechanical works in connection with these natural conditions and their development, for specially trained chemists has led to the establishment of a special course in CHEMISTRY.

COURSES OF INSTRUCTION.

The instruction in all the engineering courses is substantially the same during the first two years of the course, except that the electrical engineers substitute the study of physics and practical work in the physical laboratory for a part of the surveying, field, and office work of the other courses.

The following branches are common to all the courses:—

MATHEMATICS.

Professor Hall and Messrs. Brasefield, Feters, Post, and Dickinson.

The attention of applicants for admission to technical courses is called particularly to the necessity of thorough

preparation in Mathematics. All candidates should be thoroughly grounded in fundamental principles and operations, and it is strongly recommended that the Preparatory Mathematics be carefully reviewed just prior to entrance. Readiness and accuracy is required not only in demonstrating propositions, but also in solving problems.

An accurate and ready knowledge of the preparatory work in Mathematics and a certain degree of mathematical maturity are indispensable to the successful prosecution of an Engineering course. Most of the men who fail in their College mathematics, fail because they are not prepared before coming to college to perform the ordinary operations in Algebra, Geometry, and Trigonometry, rapidly and accurately. It is therefore quite essential that these subjects, and especially the Algebra, be thoroughly reviewed just before entrance.

While the study of Mathematics as mental discipline will not be overlooked, the object will always be to give the student that working knowledge of the subject that will enable him to apply, accurately and readily, mathematical principles to the solution of engineering problems.

Higher Algebra, Plane and Spherical Trigonometry, Logarithms, Mensuration, and Plane Analytical Geometry are given in the Freshman year. The following subjects are given in the Sophomore year: Analytical Geometry of three dimensions, Differential and Integral Calculus, Differential Equations, and Least Squares.

ASTRONOMY.

In addition to a course in General Astronomy similar to that of the Classical Course, the Civil Engineers are

given a course in Practical Astronomy. This course keeps constantly in mind the needs of the Engineer. It includes a careful study of the Transformation of Astronomical Co-ordinates, a short discussion of Parallax and Refraction, a careful discussion of the construction, adjustment, and use of Astronomical Instruments, of the methods of determining Time and Latitude by means of the Sextant, of Time by the Transit Instrument, of the methods of determining Longitude, and of the methods of determining Latitude by the Zenith Telescope. The students are required to make frequent observations with the Sextant and Transit Instrument.

SURVEYING.

Professor Folwell.

For Drawing, Laboratory, and Field work an "hour" consists of three hours; for other studies, of one hour.

This course, progressive and practical, is as follows:—

FRESHMAN YEAR.

Third Term.

	HOURS.
Lectures and Recitations	1
Summer School of Surveying. (In vacation.)	Three weeks.

SOPHOMORE YEAR.

First Term.

Lectures, Recitations, Field and Office Work. Theory of Chain, Compass, and Transit Surveying; Leveling; Adjustment and Use of Surveying Instruments	2
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Second Term.

Lectures, Recitations, and Office Work. Pen and Colored Topography; Location and Construction of Roads, Streets, and Pavements	2
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Third Term.

HOURS.

Lectures, Recitations, Field and Office Work. Topographical Surveying; Map of Survey; Notes; Railroad Surveying	2
Summer School of Surveying. (In vacation.)	Three weeks.

JUNIOR YEAR.

First Term.

Lectures, Recitations, Field and Office Work. Railroad Reconnaissance and Location	3
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SENIOR YEAR.

Third Term.

Geodesy; Lectures, Recitations, Field and Office Work....	2
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DRAWING.

Professor Hall and Messrs. Brasefield and Fetters.

Instruction in the Elements of Mechanical Drawing includes the use and testing of drawing instruments and materials, the drawing of lines, pen tinting and shading, flat tinting with brush, and wet and dry shading in ink and in colors, free-hand pen shading; plans of buildings, instrumental copying, traced copying, and transfer of drawings, blue prints, and working drawings.

In addition to text-book exercises, free-hand sketches and mechanical drawings in ordinary orthographic, isometric, and clinographic projections are made from models constructed for this purpose.

The drawing for the first two years is arranged as follows:

FRESHMAN YEAR.

First Term.

Elements of Mechanical Drawing.
Plane Problems. Free-hand Lettering.

Second Term.

Elementary Projections. Working Drawings.

Third Term.

Projections, including Shades and Shadows. Isometric and Cabinet Projections.

Model Drawing. Sketching.

SOPHOMORE YEAR.

First Term.

Descriptive Geometry. Plates.

Plotting Surveys.

Second Term.

Descriptive Geometry. Plates.

Pen and Colored Topography.

Third Term.

Machine Drawing.

Map of Survey.

All the students in the Engineering, Chemical, and General Scientific Departments take the first year's work in Drawing, as shown above. All the students in the Engineering Departments take the second year's course. During the Junior and Senior years the drawing in the Technical Departments includes the following: Maps of Surveys, Graphic Statics, Constructions in Stone Cutting, Bridge Drawing, and graphical methods of locating faulted beds and veins.

MINERALOGY AND GEOLOGY.

Professor Peck.

Students in the Technical Courses begin work in this Department the first term Junior year, and complete it

the second term Senior year, with the exception of the students in the Mining Engineering courses, who continue through the third term of the Senior year, taking the regular field work required of the Senior classicals, and in addition a short course in the geology of ore deposits, consisting of one lecture per week.

The first term Junior year is devoted to Crystallography, in which Elements of Crystallography, by G. H. Williams, is used as a text-book. The course is supplemented abundantly by laboratory practice.

The second term's work consists in a systematic review of mineral species, more especial attention being paid to their chemical and crystallographic relations and to their mode of occurrence in Nature. Instruction is given by lectures, which are illustrated by a study collection, consisting of some two thousand specimens, including the most important species.

The third term's work consists in a discussion of mineral aggregates, or how minerals combine to form igneous, metamorphic, and sedimentary rocks, which discussion is in direct preparation for the work in Geology which follows in the Senior year.

The Department has a large projecting apparatus to be used in demonstrating before a class the optical properties of the rock-forming minerals by means of polarized light, to which there is also a large microscope attachment for use in projecting upon a screen thin sections of rocks for the purpose of showing their structure and mineralogical composition. Also five reflecting goniometers, with horizontal circle and of the most recent pattern, have been purchased, to be used by the more advanced students in the technical courses in determining the geometrical constants of crystals; and a new and

improved polariscope to be used in the study of crystal optics. (All of the above instruments were made by Fuess, in Berlin.) Four petrographical microscopes are also in the possession of the Department, and instruction will be given to the more advanced students in modern petrographical methods, *i. e.*, in the preparing and mounting of thin sections for study with the microscope.

The course in Mineralogy of the Junior year is followed in the Senior year by a course in the elements of Geology, in which Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed. The first term is devoted to Dynamical, Structural, and Physiographical, and the second term to Historical, Geology.

Students pursuing the course in Mining Engineering will, in the third term Senior year, take field work with the classical elective division, and will be given also a short course, consisting of one lecture per week, in the geology of ore deposits.

The text-book in the Technical Courses is Williams' *Crystallography*. Crystallography is taught with the aid of two hundred and fifty models in wood. Instruments are provided for the study of the optical properties of minerals. There is also a mineral dresser, a lathe run by electricity, and all the apparatus for the preparation, mounting, and microscopical study of thin mineral and rock sections.

CHEMISTRY.

Professors Hart and Wyszor, and Messrs. Turrentine and De Long.

The study in this Department begins with a course of lectures in General Chemistry. A text-book is used and

daily recitations are held. Each student is required to work in the Laboratory.

In the Mining Engineering and Electrical Engineering Courses this course is followed in the Junior and Senior years by courses in qualitative and quantitative analysis. Special attention is given to the analysis of engineering materials. The modern quick methods are thoroughly taught, theoretically and practically.

Partial or special students may enter the Laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

PHYSICS.

Professor Moore and Mr. Post.

The studies in this Department in all the courses at present occupy four recitations or lectures a week, beginning with the third term, Sophomore year, and continuing through the first and second terms of the Junior year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments.

In other subjects text-book study is accompanied with illustrative lectures, aided by apparatus which is continually enlarged and improved.

For students of the Technical Courses one period a week in laboratory work is required. Experiments in mechanics, sound, heat, electricity, magnetism, and light are performed by the student, thus illustrating and emphasizing the principles of each respective subject.

For the advanced studies of the Technical Courses in Analytical Mechanics and other topics of Mechanical Engineering see pages 72 and 80.

In Physics, as well as in Astronomy, Chemistry, Engineering, and Natural History, the studies are illustrated by wall charts, twelve hundred in all, many of which give illustrations not otherwise easily accessible to students.

HISTORY AND POLITICAL ECONOMY.

The Seniors pursue a course in Political Economy for one term. (*Vide* pages 25 and 27.)

RHETORIC AND ELOCUTION.

Prof. F. A. March, Jr.

See p. 28 for the general statement of the work in Elocution and Rhetoric, and p. 115 for the Literary Societies which are strongly recommended to the students of the Engineering Department.

A Thesis is required in all the Technical Departments as a condition of graduation. It must show evidence of original investigation upon a subject appropriate to the Department and approved by the professor in charge. It must be neatly written upon regulation paper, bound and illustrated with such photographs, drawings, and sketches as may be needed. It will be prepared during the latter part of the Senior year, and an opportunity will be given at the close of the course to read and defend the same before a public audience. These Theses, accompanied by their drawings, photographs, etc., if accepted, become the property of the College, and are deposited in the Libraries of the various Departments.

DEPARTMENT OF CIVIL ENGINEERING.

*Professors Porter and Folwell, and Messrs. Brasefield
and Fetters.*

The design of this course is to furnish such theoretical instruction and engineering practice as will prepare its graduates for immediate usefulness in the field and office, and, after a moderate amount of professional experience, enable them to fill positions of trust and importance in their chosen profession. During the last two terms of Senior year, students are offered a choice between two lines of study, in one of which special attention is given to the subject of Bridge Engineering, in the other to that of Municipal Engineering.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the field, laboratory, and drafting-room. Theoretical principles are illustrated and explained by such problems and examples, taken as far as possible from actual engineering practice, as will best serve the purpose. In addition to the regular lectures, occasional ones are given by prominent engineers, in active practice, upon their specialities.

During the course visits are made to engineering structures, mills, etc., in connection with their special study. During the Senior year a tour of inspection is made of the prominent industries not otherwise accessible.

FACILITIES FOR INSTRUCTION.

The Department has a large equipment of instruments necessary for the various branches of engineering

field practice, including chains, tapes, compasses, plane-tables, transits, levels, barometers, base-rods, standard base-line tapes and pulling apparatus, sextants, solar compasses, solar attachments for transits, floats, and current meters. A twelve-inch portable altitude and azimuth instrument of the latest and best form, from Fauth & Co., Washington, D. C., is used for instruction in Geodesy and Practical Astronomy. It is read by micrometer microscopes to single seconds, both of altitude and of azimuth, and is provided with level for double zenith distances. A precision level of the latest design is employed in instruction in precise leveling. The astronomical observatory contains an equatorial telescope, transit, an astronomical clock, meteorological instruments, etc.

For use in the lecture-room there are numerous models of the various types of bridges and roofs, several complete sets of full-weight sections of I and deck beams, channels, Z bars, angles, Phoenix and Keystone Columns, and the standard built sections; five foot section of a full weight plate girder, numerous full-weight sections of riveted joints, representing bridge and boiler work, hand and power riveting; sections of steel rails for railroads and street railways, cable slots, etc.; drawings, photographs of engineering structures when completed and during construction; slide rules and other calculating machines.

The Department also has a full-weight pin-connected highway bridge of fifty feet span and fourteen feet roadway, weighing twelve tons, together with all false work and tools necessary to erect the same.

The main Testing Laboratory is thirty feet by sixty

feet in dimensions, well lighted, and contains an Olsen and a Riehle Automatic Machine of one hundred thousand pounds capacity, arranged for tension, compressive, and transverse testing; a sixty-thousand pound Hydraulic Machine, a four-thousand pound wire tester, and a smaller machine for testing cord, twine, etc.; a transverse machine for specimens up to five feet in length, and provided with micrometers for measuring deflection; a torsion machine; a rattler for abrasion test of paving brick; improved elongation meters, and numerous smaller micrometers. The power for the laboratory is furnished by a ten-horse power electric motor.

The Cement Laboratory contains two two-thousand and one one-thousand pound machine for testing cement by tensile, compressive, or transverse stress; a machine for moulding briquettes under pressure, and a power-driven Boehme Hammer; a jig; a boiler for boiling tests; large immersion tanks, with running water, and the necessary moulds, sieves, scales, moist closets, etc. The power for this laboratory is furnished by a three-horse power electric motor.

The Hydraulic Laboratory contains a large vertical tank arranged for making experiments on the flow of water through orifices and nozzles under heads up to three hundred feet, as well as several tanks for use under low heads; three tanks, two of them thirty feet long, for weir experiments; a turbine, Backus wheel, and other water motors; a Venturi meter, a measuring tank of a capacity of four thousand gallons, a smaller one of three hundred gallons, scales, and other appliances for measuring the water used in experiments, as

well as arrangements for testing meters, nozzles, and fire hydrants, and for lecture-room illustrations. There is also connected with the laboratory a one-million gallon Worthington duplex pump. The laboratory is connected with a large cistern by four lines of sewer pipe of different sizes, each three hundred feet long, and arranged for making tests of joints and various experiments on flow of water.

The shop, which is in charge of a skilled mechanic, contains an engine lathe, drill press, a planer, a mineral lathe and saw, and the other necessary appliances for preparing test specimens, models, and apparatus, and for repair work.

The Library contains a number of the best and latest books and periodicals upon Engineering subjects, and students are encouraged to make free use of the same.

SPECIAL STUDIES.

The first two years of the course are spent in laying a foundation of pure mathematics, drafting, surveying, chemistry, and modern languages. The last two years are devoted to the more purely professional work, which may be divided as follows:—

SURVEYING.—The theoretical study of surveying extends over four terms, the field practice being confined almost entirely to the Summer School in Surveying. This school became a required part of the course with the year of 1901-02. The course in surveying includes land surveying, leveling, topography, hydrography, triangulation, railroad reconnaissance and location, and the elements of geodesy. Particular attention is given to have the students become rapid and at the same time accurate instrument men, to be able to handle a corps advantageously, to keep neat and systematic notes, and make a clear and correct map. No error is allowed in the field or map which is not within the limits observed in current practice.

ANALYTICAL MECHANICS is taught by means of lectures and

recitations, treating upon forces, their composition and resolution, conditions of equilibrium, centre of gravity, moment of inertia, theory of motion, momentum, impact, energy, and friction; solution of numerous problems.

RESISTANCE OF MATERIALS.—This subject is treated by means of lectures, text-books, and laboratory practice sufficient to thoroughly fix in the mind the principles of stress and strain, the behavior of materials under tension, compression and shearing stresses, resistance of pipes and riveted joints, strength and flexure of simple, cantilever, restrained, and continuous beams variously loaded; formulas for columns, torsion, shafts; working-strengths and fatigue of materials; designing of rolled and built beams, shafts, and columns according to standard specifications. Visits are made in connection with this course to pipe and boiler works.

MATERIALS OF CONSTRUCTION.—This course is to familiarize the student with the qualities, requirements, method of testing, preserving, and cost of material used in engineering structures. In connection with this course, visits are made to blast furnaces, rolling and wire mills, quarries, and cement works.

BRIDGES AND ROOFS.—This course includes the computation of stresses in the various forms of trusses by both numerical and graphical methods. Following this, each student designs a roof-truss, and those electing Bridge Engineering design a plate-girder, and then a pin-connected bridge, according to standard specifications, making full computations, working-drawings, bill of material, and estimate of cost for same; special attention being given to an economical design, and to joints and other details. Actual practice is given by the erection each year by the students of a full-weight, pin-connected bridge belonging to the Department. Visits are made to bridges, and their details and general design are criticised, upon which written reports are made.

HYDRAULICS.—This subject is treated by recitations and laboratory work, embracing the study of head, velocity, and discharge through orifices, tubes, pipes, canals, and rivers; measurement of water-power; testing hydraulic motors.

MUNICIPAL ENGINEERING, which is preceded by a course in Bacteriology, is taught by lectures and recitations, supplemented

by practice in designing. It covers the supplying of water, and construction of reservoirs, stand-pipes, and pumping plants; the purification of water, and its distribution through mains and appurtenances; methods of collecting sewage, both dry and water-carried, and of disposing of this and of garbage, including determining the size and capacity of sewers, mains, laterals, inlets, flush tanks, etc.; cleaning and lighting streets; drainage and ventilation of buildings; estimates and specifications. In connection with this study, frequent visits are made for the purpose of inspecting existing works, completed and under course of construction. Each student electing this course is required to design a system of distribution or sewerage for some imaginary town, making complete maps, bill of material, and detailed estimate of cost.

RAILROAD ENGINEERING.—The work in railroad engineering includes the mathematical discussion of curves, frogs, switches, and crossings; economical locations as to grades and curves; calculation of earthwork; designing of trestles, culverts and other structures; discussion of the properties and shapes of materials used in construction. The field practice consists of a reconnoissance and location of a line upon such ground as will best illustrate the problems occurring in actual practice, making a complete map, and designing such details as drains, culverts, road-crossings, etc., calculating earthwork; complete set of notes of all work done in field and office; estimating cost, including equipment.

MASONRY CONSTRUCTION.—This course treats of the requisites of stone, brick, and cement; practice in the testing of these materials; the method of preparing mortar and concrete; strength of stone and brick masonry, foundations, dams, retaining walls, bridge piers and abutments; culverts and arches; study of existing structures; specifications and cost.

ROADS, STREETS, AND PAVEMENTS.—This course comprises the reconnoissance, location, construction, and maintenance of towns and country roads, city streets, and pavements; tramways and street railways; details of construction; street cleaning; testing the quality of road material; specifications; estimates.

ASTRONOMY is taught by means of text-books and lectures accompanied by practice in the field and observatory. The prac-

tical work includes the use and adjustment of instruments, and the determination of time, latitude, longitude, and azimuth.

GEODESY.—This course includes the study of the instruments and the methods employed in measuring base lines, establishing stations, measuring angles, reducing triangulations, projecting maps, etc.

MACHINERY.—This course includes the theoretical principles of the steam-engine and other prime movers. Examinations and reports are made upon the power plants of some of the manufacturing establishments of the city, and upon locomotives, elevators, and cranes. The student is made familiar with the use of the steam indicator, planimeter, and speed indicator, and has practice in interpreting indicator diagrams.

The Department invites its friends and students to send specimens of materials, drawings, models, or photographs of bridges, machinery, or other engineering works. Illustrated circulars and price lists are also desired. Such contributions will be labeled with the donor's name and placed on exhibition, and when possible used in the work of the Department.

SYNOPSIS.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR.

First Term.

	HOURS.*
MATHEMATICS.—Algebra (Wentworth)	4
CHEMISTRY.—Lectures and Recitations (Hart)	4
MODERN LANGUAGES.—German Grammar, Composition, and Translation, 2; English, 2	4
DRAWING.—Elements of Industrial Drawing; Plane Problems	2
HYGIENE.—Lectures on Health	1
THE BIBLE	1

Second Term.

MATHEMATICS.—Trigonometry (Crockett's)	5
CHEMISTRY.—Lectures and Laboratory Practice	2

* An "hour" indicates one hour of recitation or an equivalent period of three hours of field or laboratory work.

	HOURS.
MODERN LANGUAGES.—French, 2; German, 2; English, 2..	6
DRAWING.—Projections; Plates; Free-hand Lettering.....	2
THE BIBLE	1

Third Term.

MATHEMATICS.—Spherical Trigonometry and Analytical Geometry (Wentworth); Mensuration (Hall).....	5
MODERN LANGUAGES.—French (continued), 2; German (continued), 2; English, 2.....	6
DRAWING.—Projections (Model Drawing); Plates	2
SURVEYING.—Instruments and their use	1
CHEMISTRY	2
THE BIBLE	1
<i>Throughout the year—Themes.</i>	
SUMMER SCHOOL OF SURVEYING. (In vacation.)..	Three weeks.

SOPHOMORE YEAR.

First Term.

MATHEMATICS.—Analytical Geometry (Bowser), Differen- tial Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	2
MODERN LANGUAGES.—French, 2; German, 2; English: Trench on Words, 2.....	6
SURVEYING.—Lectures, Recitations, Field and Office Work; City and Mine Surveying; Leveling; Map of Survey; Notes; Location and Construction of Roads, Streets, and Pavements	2
CHEMISTRY	2
THE BIBLE	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	3
MODERN LANGUAGES.—German, 2; French, 2; Rhetoric, 1..	5
DRAWING—SURVEYING.—Pen and Colored Topography.....	2
ANALYTICAL CHEMISTRY	2
THE BIBLE	1

Third Term.

	HOURS.
MATHEMATICS.—Least Squares and Differential Equations	5
MECHANICS.—Elementary Mechanics (Moore) (one laboratory period)	4
DESCRIPTIVE GEOMETRY	2
CHEMISTRY.—Lectures and laboratory	2
SURVEYING.—Lectures, Recitations, Field and Office Work. Topographical Surveying; Survey of a small area; Map of Survey; Railroad Surveying	2
THE BIBLE	1

SUMMER SCHOOL OF SURVEYING (in vacation)Three weeks.

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity (one period in laboratory)	4
APPLIED MECHANICS	4
CHEMISTRY.—Metallurgy of Iron and Steel	2
MINERALOGY.—Crystallography	2
RAILROADS.—Lectures, Recitations, Field and Office Work. Railroad Reconnaissance, Location and Construction	3
THE BIBLE	1

Second Term.

MECHANICS.—Theory and Conditions of Equilibrium. Centre of Gravity. Moment of Inertia. Solution of Problems	4
PHYSICS.—Acoustics; Optics (one period in laboratory)	4
MINERALOGY.—Descriptive	2
RESISTANCE OF MATERIALS	3
ELECTRIC RAILWAYS	2
RAILROADS.—Locating, Designing and Estimating Quantities	2
THE BIBLE	1

Third Term.

	Hours.
MACHINERY.—Steam Engine, Elevators, Cranes. Lectures and Text-book	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory	4
SURVEYING.—Lectures and Recitations. Railroad Economics; Field Work; Topographical Surveying	2
MINERALOGY	3
SANITARY BIOLOGY	2
THE BIBLE	1
THEMES.	

SUMMER SCHOOL OF SURVEYING (in vacation)Three weeks.

SENIOR YEAR.

First Term.

BRIDGES AND ROOFS.—Theory and Calculation of Stresses in Simple Trusses by Analytical and Graphical Methods. Designing of a Roof-truss	6
HYDRAULICS.—Theory of Hydrostatics. Efflux of Water from Orifices and Tubes. Weirs. Flow in Pipes, Canals, and Rivers. Hydraulic Motors. Laboratory Work	5
GEOLOGY	2
ASTRONOMY.—Descriptive Astronomy. Text-book and Lectures	2
BIBLE	1

Second Term.

MASONRY CONSTRUCTION.—Testing Laboratory	2
GEOLOGY.—Historic and Dynamic. Text-book and Lectures	2
ASTRONOMY.—Practical Astronomy. Observatory Work..	2
POLITICAL ECONOMY	2
BIBLE	1

ELECTIVES.

Number 1.

HOURS

BRIDGES.—Theory and Calculation of Stresses in Continuous, Cantilever, and Suspension Bridges by Analytical and Graphical Methods. Designing of Plate-girders and Riveted Bridges, with Working Drawings. Estimates and Contracts	9
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Number 2.

MUNICIPAL ENGINEERING. WATER SUPPLY.—Source and Supply of Water for Towns. Designing, Construction, and Maintenance of Systems	9
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Third Term.

SURVEYING.—Field and Office Work. Precise Triangulation and Leveling. Elements of Geodesy	2
THESIS for Graduation	2
BIBLE	1

ELECTIVES.

Number 1.

BRIDGES.—Design of a Pin-connected Bridge, with Working Drawings. Bill of Material. Estimates and Contracts	11
ERECTION.—Designing of False Work, and Erecting of Bridges. Practice in Erecting a Full-weight Pin-connected Bridge	11

Number 2.

MUNICIPAL ENGINEERING ; SANITARY.—Designing, Construction, and Maintenance of Sewerage Systems. Sewage Disposal. Drainage, Ventilation, and Heating of Buildings. Street Cleaning and Garbage Disposal ..	11
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MINING ENGINEERING DEPARTMENT.

Professor Hall and Messrs. Brasefield and Fetters.

The aim of the course in Mining Engineering, leading to the Degree of Engineer of Mines, is to provide a good education; to lay in a thorough manner a sound foundation in Engineering, and to give special preparation in Mining, Geology, Chemistry, Metallurgy, and Assaying.

The courses in Surveying, Analytical Mechanics, Resistance of Materials, Materials of Construction, and Railroad Engineering are given in the Civil Engineering Department, and have been fully described.

The courses in Mathematics, Languages, Physics, and Pure Graphics are the same in all the Engineering Departments, and have been presented.

A course in the Theory of Steam Engineering is followed by Graphical Constructions and Computations.

In Mechanical Engineering, after the courses in Analytical Mechanics, Resistance of Materials, Materials of Construction, and Graphic Statics, a term of Machine Design and Construction is given.

In Surveying, the theory and practice extends through the first three years, and includes: Chain, Compass, and Transit Surveying; Adjustment of Instruments; Leveling; City Surveying; Location and Construction of Roads, Streets, and Pavements; Topographical Surveys; Railroad Reconnaissance, Location, and Construction, with Profile Plans, Earthwork Calculations, Bills of Material, Estimates, Specifications, and Contracts; Theory of Mine Surveying, and the actual survey of a mine.

Following the course in Electricity as given in Physics, two periods each week for one term are devoted to the study of Electrical Machinery with selected laboratory work, having especial reference to the application of electricity to mining operations.

The course in drawing includes: Elements of Mechanical Drawing, tracings and blue prints; Free-Hand Drawing and Lettering; Descriptive Geometry; Topographical Drawing; Graphic Statics; Map Drawing; Machine Drawing and Design. Additional drawing is also required in connection with mining problems.

The work in Chemistry begins with the first term of the Freshman year, and continues, without any break, for two and one-half years. Lectures and text-book study are accompanied by recitations and laboratory practice.

Metallurgy is given in two terms, and embraces the metallurgy of iron, steel, gold, silver, copper, lead, zinc, etc. Thorough courses are also given in Assaying and Blowpiping.

Particular stress is laid on a thorough course in English, which extends over the first two years. The course includes the study of Rhetoric. Both German and French are studied each term for the first two years. Two periods each week for one term are devoted to the study of Political Economy, and the same length of time is given to the study of the Constitution of the United States. A theme written on some assigned technical subject is required of the student each term.

In addition to the courses in Mineralogy and Geology, as previously explained, the mining engineers are given a course of two hours each week for one term in the

study of Ore Deposits, and a course of the same length is given in Economic Geology. Instruction in the class room will be supplemented, so far as possible, by a study of the different kinds of ore, and of the "country rock" in which they occur. A special course in the modern methods of determining rocks in thin sections by means of the polarizing microscope, with instruction in the proper methods of preparing and mounting the sections, will be offered; and practice in the ordinary methods of field work in geology, with the mapping and sectioning of a certain region, will be given.

The course in Mining proper begins with the Theory of Mine Surveying and the solution of problems for determining the position of faulted ore bodies. Then follows Prospecting for ore deposits in lodes, beds, and placers; Prospecting for magnetite with the magnetic needle, and borings for water, oil, and gas. The study of Rope, Rod, and Diamond Drill Boring is followed by that of Blasting and Excavation. In this connection the various tools, machines, and explosives are studied, together with their application in Blasting and Quarrying. Shaft Sinking, Shaft Boring, and Tunneling are studied, together with the materials for the support of excavated spaces and the methods of their application. While all the methods of Exploitation are investigated, particular attention is given to the mining of soft ore bodies, and of anthracite and bituminous coal. In the treatment of Haulage and Winding, special consideration is also given to the requirements of coal mining. Prominence is given to the study of Ventilation and Lighting because of their great importance in coal mining. The subject of Drainage receives careful treat-

ment. Mining Law is studied with reference to locations on public lands, and also with reference to the prevention of mine accidents. The Mechanical Separation of Ores is studied, and designs and reviews of Special Mining Operations are made. The principles involved in determining the values of Mines and Quarries are discussed.

The Mining Engineer students use a separate room as a study. This is provided with an excellent Mining Library, and is supplied with the leading Mining periodicals. By the aid of a topical index, the library is regularly used in the study of the subjects assigned. The student is in this way led to many original sources for information, and becomes acquainted with the prominent works on Mining.

Magnetite, hematite, and limonite iron mines are close at hand, and the anthracite coal mines and zinc mines are easily accessible; these, with extensive quarries of slate, limestone, steatite, granite, serpentine, and sandstone in the vicinity, offer excellent opportunities for the study of mining and quarrying operations.

The Ingersoll-Sergeant Drill Company, one of the largest manufacturers of mine machinery in the world, is located at Easton. This gives the Mining students the opportunity of seeing the construction of important mine machinery and of testing the machines.

Frequent visits are made to the mines and quarries in the vicinity, and two weeks in the spring vacation are spent at some prominent mining region in the practice of Mine Surveying and in the study of Practical Mining. Students are advised to spend one long summer vacation during their course in actual work at the mines.

The spring trip of 1902 was taken to the bituminous regions of Western Pennsylvania. A survey was made in a mine at Brownsville and several other mines were inspected. Important engineering plants in the Pittsburg region were visited, among which were the Homestead Steel Works, National Tube Works at McKeesport, Pennsylvania Car Shops at Altoona, American Bridge Company's Works and Westinghouse Electric Manufacturing Company's plant.

Attendance at one session of the Summer School of Surveying is required of the Mining Engineering students, and attendance at the second session is strongly recommended.

The Class of '84 at its vigintennial reunion subscribed the sum of \$2,000, the income of which is to be devoted to the purchase of books and apparatus for the Department of Mining Engineering.

SYNOPSIS.

MINING ENGINEERING COURSE.

The Freshman and Sophomore years are the same as in Civil Engineering. (See page 75.)

JUNIOR YEAR.

First Term.

	HOURS.
MECHANICS.—Theory and Conditions of Equilibrium, Centre of Gravity, Moment of Inertia, Solution of Problems	4
PHYSICS.—Heat, Magnetism, and Electricity (one period in laboratory)	4
SURVEYING.—Lectures, Recitations, Field and Office Work. Topographical Survey and Leveling. Map of Survey	3
MINERALOGY.—Crystallography	2
CHEMISTRY.—Quantitative Analysis	2
THE BIBLE.—New Testament Epistles, in German	1

Second Term.

HOURS.

APPLIED MECHANICS	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory	3
PHYSICS.—Acoustics. Optics (one period in laboratory) .	4
RAILROAD ENGINEERING	2
SPANISH (Optional)	2
CONSTITUTION OF THE UNITED STATES	2
MINING	2
MINERALOGY.—Descriptive Mineralogy	2
THE BIBLE	1
MINING.—Practical Work in the Mines in the Spring Vac- ation.	

Third Term.

RESISTANCE OF MATERIALS.—Testing Laboratory	4
STEAM ENGINEERING	4
MINERALOGY.—Determinative	3
MINE ENGINEERING	2
RAILROAD ENGINEERING	2
THE BIBLE	1
MINING.—Map of Mine Survey.	
<i>Throughout the year.</i> —Themes.	

SENIOR YEAR.

First Term.

HYDRAULICS.—Theory of Hydrostatics. Flow of Water in Pipes, Canals, and Rivers. Weirs. Efflux of Water from Orifices and Tubes. Hydraulics. Motors	5
MECHANICAL ENGINEERING	2
METALLURGY	2
GEOLOGY	2
MINING.—Prospecting, Deep Boring, Blasting and Quarry- ing	4
BIBLICAL STUDY	1

Second Term.

	HOURS.
METALLURGY	2
GEOLOGY	2
ASSAYING	4
POLITICAL ECONOMY	2
MINING.—Shaft Sinking, Tunneling, Exploitation, Haulage, and Winding	5
BIBLICAL STUDY	1

Third Term.

FIELD GEOLOGY	2
ECONOMIC GEOLOGY.—Lectures, Recitations, and Field Work	2
ELECTRICAL ENGINEERING.—Electric Lighting and Electric Mine Machinery	2
MINING.—Ventilation, Drainage, Mechanical Separation of Ores. Designs for and Reviews of, Special Mining Operations	9
BIBLICAL STUDY	1
GRADUATION THESIS.	

COURSE IN ELECTRICAL ENGINEERING.

Professor Moore and Mr. Dickinson.

This course was organized in response to an earnest demand from students who sought opportunities of study in this department of science. It is parallel to the other technical courses, and differs from them in substituting the study of Physics, especially Magnetism and Electricity, for the strictly professional portions of the other courses.

The Sophomore year is the same as that of the civil engineers, except that two periods per week are given to work in the Physical Laboratory, amounting to six hours' actual laboratory work. In the Junior and

Senior years about one-half of the time of the students is given to special work in electricity and kindred subjects.

Graduates in the Department of Electrical Engineering receive the Degree of Electrical Engineer.

The laboratories are large and well arranged.

The *General Laboratory of Physics* is thirty by sixty feet in dimensions, well lighted and convenient. The ceiling is high, and ample wall space is provided for permanent pieces of apparatus. Gas, electricity, compressed air, etc., are close at hand.

The main *Electrical Laboratory* is also thirty by sixty feet in dimensions. This room is fitted up with all the appliances required in such a laboratory. The dynamo collection consists of representative types of continuous and alternating current generators and motors, lamp banks, water rheostats, brakes, etc.; and the necessary instruments are supplied for loading and testing motors and generators.

A transformer collection to show the representative American types is being made.

The laboratory is supplied from the Easton Power Company's station with continuous currents at one hundred and ten and two hundred and twenty volts, and with alternating current at sixty frequency. Other pressures can be obtained from generators in the laboratory; and alternating and polyphase currents of other frequencies can be generated at will by means of alternators and rotary converters. Galvanometers of all kinds, batteries, commercial testing instruments, etc., are in constant use.

The *Testing Laboratory* consists of two rooms, each

being about twenty-two feet square. It contains the necessary delicate instruments for accurate testing, among which are a Thompson Quadrant Electrometer, a Thompson Reflecting Astatic Galvanometer, several D'Arsoval Galvanometers, Resistance boxes, Wheatstone Bridges, Ballistic Galvanometers, Condensers, etc.

The Laboratory is also equipped with a high tension storage battery, for use in connection with tests upon inculcating material.

The work in the Laboratory is quantitative as well as qualitative in character, special emphasis being placed on the necessity for accuracy and precision in all measurements.

A *Photometer Room* is provided, which is equipped with all apparatus necessary for the determination of candle power and the efficiency of incandescent lamps.

The *Spectroscopic Laboratory* is twenty-five feet long by twenty-one feet wide. It contains spectroscopes of the best makers. This room is also used as the Microscopic Laboratory. The Department is well supplied with microscopes.

The *Shop* contains a seven horse power Otto gas engine, besides a fifteen and a twenty horse power electric motor. There are lathes, emery wheels, and the other usual appliances of a repair shop.

The *Apparatus Room* is stocked with the latest and best instruments.

The *Lecture Room* is large, well lighted, and supplied with all the conveniences for table experiments. Steam, compressed air, gas, electricity, and sunlight are very carefully arranged for.

In addition to the dynamos and motors owned by the

College, the students have access to the Edison and municipal plants and to the finely equipped electric railways of the city.

The *Physical and Electrical Library* is well stocked with the standard works on electrical and other subjects, and is kept up to the times by the constant addition of foreign and home periodicals. The latest advances in physical science are announced to the classes, and reports, written and oral, are made by the students upon them. The Library, in connection with the Laboratory, is regarded as an exceedingly important instrument of instruction.

The studies of the Freshman and of the Sophomore years are the same as in the Civil Engineering Course, except that in the Sophomore year Physical Laboratory work takes the place of Surveying.

JUNIOR YEAR.

First Term.

	HOURS.
PHYSICS.—Heat, Electricity. Lectures and Recitations..	4
PHYSICAL LABORATORY.—Electricity	2
ELEMENTS OF MECHANISM	2
APPLIED MECHANICS	4
DRAWING.—Descriptive Geometry	4
MINERALOGY	2
THE BIBLE	1

Second Term.

APPLIED MECHANICS	4
RESISTANCE OF MATERIALS	3
PHYSICS.—Acoustics. Optics. Lectures and Recitations.	4
ELECTRICAL ENGINEERING	2
PHYSICAL LABORATORY.—Electrical Measurements	2
UNITED STATES CONSTITUTION	2
THE BIBLE	1

Third Term.

	HOURS.
ELECTRICAL ENGINEERING.—Dynamo Electric Machinery..	2
Laboratory	2
RESISTANCE OF MATERIALS	3
STEAM ENGINE	4
MINERALOGY	3
THE BIBLE	1
THEMES.	

SENIOR YEAR.

First Term.

ELECTRICAL ENGINEERING.—Dynamo Electric Machinery...	6
Laboratory. Electrical Testing	2
HYDRAULICS	5
DRAWING.—Machine Designing and Drawing	2
THE BIBLE	1

Second Term.

ELECTRICAL ENGINEERING.—Alternating Currents	6
Electric Transmission	3
The Electric Telegraph	1
Laboratory	3
POLITICAL ECONOMY	2
THE BIBLE	1

Third Term.

ELECTRICAL ENGINEERING.—Alternating Current Machinery	6
The Electric Railroad	3
The Telephone	2
Laboratory. Electrical Testing	2
Designs for and Reviews of, Electrical Engineering Works.	
HISTORY	2
THE BIBLE	1
THESIS.	

Each term throughout the course—Elocution.

NOTE.—Laboratory work, as herein stated in "hours," represents three hours actual work, the "hour" indicating a "period" of that length.

COURSE IN CHEMISTRY.

*Professors Hart and Wysor and Messrs. Turrentine
and De Long.*

The aim of this course is to fit young men for practical work in chemistry, either as chemists in iron and steel works, in manufacturing establishments, or as chemical manufacturers. Great attention is paid to analytical chemistry, and especially to the chemistry of cement and the chemistry and metallurgy of iron and steel. Graduates are fitted to take paid positions as chemists immediately upon graduation. For men of the proper character immediate and remunerative employment can be secured.

This course will also be found an excellent preparation for the study of medicine.

While the instruction centres in the two branches of

CHEMISTRY AND METALLURGY,

the course aims to supply a thorough education along the lines most necessary for a successful career as a responsible chemist. The same instruction in the Bible, in Mathematics, Physics, the Natural Sciences, English, French, and German, which is required in the Engineering Courses, is required here, as will be seen in the synopsis. The study begins with a course of lectures on Descriptive Chemistry. In connection with these lectures each student is required to work in the Laboratory. A text-book is used and regular recitations are held. Following the course in Descriptive Chemistry comes a thorough drill in Qualitative Analysis in connection with frequent recitations. The beginner is encouraged to work out and use methods of

separation not laid down in the book. A thorough drill in chemical arithmetic forms part of this course.

During the Freshman year a course in Organic Chemistry is given, followed by a course in Theoretical Chemistry and a review of the Organic Chemistry. Instruction in these subjects is given by means of lectures, recitations, and laboratory work in the preparation of selected compounds.

Thorough courses are also given in Volumetric Analysis, Assaying, Metallurgy, and Inductive Chemistry. The course in Metallurgy has been greatly enlarged and improved. A large part of the time is now spent in the laboratory, which has a new equipment. There are optional courses during Junior year in Blowing and Grinding Glass, and during Junior and Senior years, in the reading of German in Scientific Text.

During Senior year the student is required to carry on an investigation upon some chemical subject, and to write a thesis giving the results of his work. He is thus thrown entirely upon his own resources. The training secured in this way is invaluable as a preparation for work after leaving college.

In Quantitative Analysis accuracy is insisted on as the first requisite, and slovenly work is discouraged in every possible way. The following substances are analyzed:

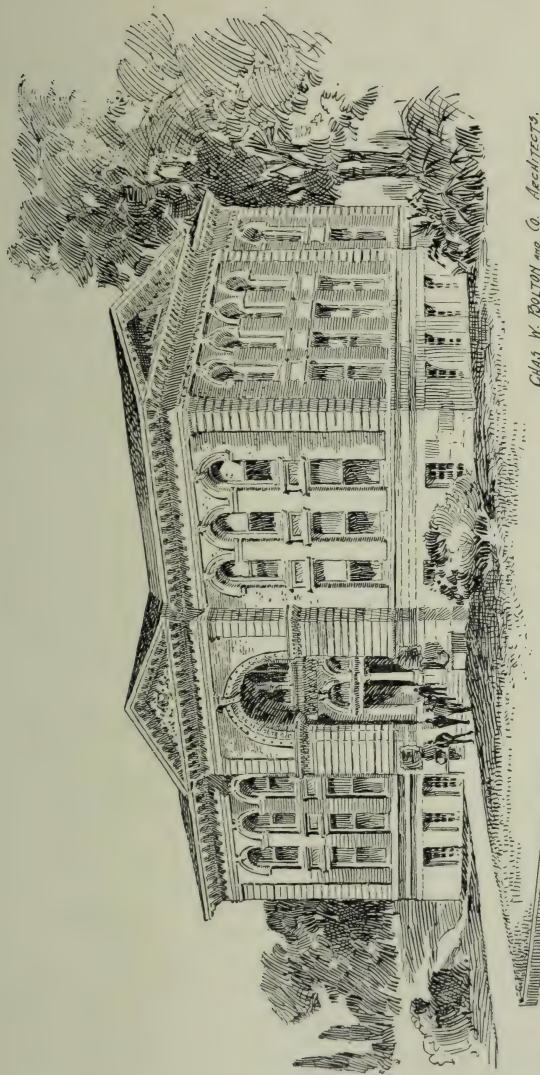
LIMESTONE (Silica, Iron, Alumina and Phosphoric Acid, Lime, Magnesia, Carbon Dioxide).

CEMENT.—Analysis.

LIMONITE.—Complete Analysis.

BLAST-FURNACE CINDER.—Silica.

COAL.—Moisture, Volatile, Coke, Ash, Sulphur, Phosphorus.



CHAS. H. BOLTON and Co. Architects.
PHILADELPHIA.

GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY

PIG IRON.—Silicon, Phosphorus, Carbon (combined and graphitic), Sulphur.

SPIEGELEISEN.—Manganese.

ALLOYS.

TITANIFEROUS IRON ORE.—Titanic Acid.

COPPER ORE.—Copper by Battery.

ZINC ORE.—Zinc, Manganese.

COMMERCIAL FERTILIZERS.—Potash, Nitrogen, Phosphoric Acid, soluble, insoluble, and total.

WATER ANALYSIS.—Total Solids, Chlorine, Sulphates, Free and Albuminoid Ammonia, Nitrates and Nitrites.

GAS ANALYSIS.—Carbon Monoxide and Dioxide, Hydrogen, and Methane.

MINERAL OIL in Lubricating Oil, Fire and Flash Tests, Gravity and Viscosity.

ELEMENTARY ORGANIC ANALYSIS.

The course in chemistry is so planned that the Freshman and Sophomore years are spent chiefly in preparation. In Junior and Senior years those who are properly prepared are encouraged to spend most of their time in preparation for their future careers. This plan makes it unnecessary to multiply degrees in Chemistry which is not considered desirable.

Students who are looking forward to the study of Medicine after graduation are allowed to substitute work in Toxicology for a part of the work laid down above.

Partial or special students may enter the laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

This department is now housed in Gayley Hall, a fine

new fire-proof building erected especially for it by James Gayley, of the Board of Trustees. This building contains four large and several smaller laboratories, lecture rooms, quiz room, assay laboratory, metallurgical laboratory, crystallizing and gas analysis rooms.

Large additions have very recently been made to the equipment. The assay room contains two new Burlingame furnaces. The metallurgical laboratory contains a full shop equipment, grinding machinery and electrical furnaces for roasting ores at uniform temperatures. There is also an electric pyrometer for testing the heat treatment of metals. Throughout the different laboratories no expense or pains have been spared to bring them into harmony with the best current practice. A course of lectures, mostly by graduates of the departments now engaged in practical work, is given annually in the lecture room of Gayley Hall.

The Henry W. Oliver Chemical and Metallurgical Library has a separate room in this building, and is open to students during study hours and on Monday, Tuesday, Thursday and Friday evenings from seven to ten o'clock. This library was endowed by Henry W. Oliver, of Pittsburg. The collection of chemical books formerly belonging to the college has been added to it by vote of the Trustees and considerable additions are annually made by purchase and gifts. In 1901 a complete and very beautiful set of the *Berichte der Deutschen Chemischen Gesellschaft*, and in 1903 a complete set of the Journal of the Iron and Steel Institute, and numerous single volumes and dictionaries were acquired.

A friend of the College has bought and presented to the Henry W. Oliver Chemical and Metallurgical Li-

brary all the pamphlets, about 3,000 in number, belonging to the library of the late Prof. Johannes Wislicenus, of the University of Leipsic.

This library represents the collection of fifty years of great activity, and will be a great addition to the Oliver Library. This library now contains about 1,500 volumes.

In addition, the students have access to Professor Hart's private chemical library, embracing about one thousand volumes. These libraries contain full sets of the *American Journal of Science*, *Dingler's Polytechnisches Journal*, *Wagner's Jahresbericht*, *Journal of the Society of Chemical Industry*, *Fresenius Zeitschrift*, *American Chemical Journal*, *The Journal of The American Chemical Society*, *Zeitschrift für Angewandte Chemie*, *Zeitschrift für Anorganische Chemie*, *Zeitschrift für Physikalische Chemie*, *Berichte der Deutschen Chemischen Gesellschaft*, and nearly complete sets of *Liebig's Annalen*, *Annales de Chimie*, *Journal of The Iron and Steel Institute*, and partial sets of the *Comptes Rendus*, *Bulletin de la Société Chimique*, *Journal für Praktische Chemie*, *Chemical News*, *Journal of the Chemical Society*, *Chemisches Centralblatt*, and many dictionaries and special works upon Chemistry and Metallurgy.

SYNOPSIS.

CHEMICAL COURSE.

The Freshman and Sophomore years are the same as in the Civil Engineering course, except that in the latter year Chemistry takes the place of Surveying in the first, second and third terms, of Descriptive Geometry in the second term and of drawing in the third.

SOPHOMORE YEAR.

Third Term.

	HOURS.
MECHANICS.—Elements of Mechanics (Moore) (one period in laboratory)	4
ANALYTICAL CHEMISTRY.—Laboratory	10
THE BIBLE.—The Acts	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

PHYSICS.—Heat, Electricity, Magnetism, Optics, and Acoustics. (First two terms) (one period in laboratory)	4
CHEMISTRY.—Theoretical and Practical, including Qualitative and Quantitative Analysis, and Laboratory work in Organic Chemistry, and in Assaying. (8 hours first and second terms; 12 hours third term)	8-12
GEOLOGY.—General and Economic. (Third term)	4
THE BIBLE.—New Testament Epistles, in German	1
<i>Throughout the year</i> —Declamations and Themes.	

SENIOR YEAR.

CHEMISTRY.—Advanced work in all departments of Chemistry, Metallurgy, Chemical Technology, with special work in some selected department. (14 hours first term; 12 hours second term; 14 hours third term) ..	12-14
POLITICAL ECONOMY.—General Principles. (Second term)	2
HISTORY.—Lectures on the development of European institutions. (Third term)	2
THE BIBLE.—History and Evidences	1
<i>Throughout the year</i> —Themes and Extemporaneous Speaking. Chemical theses.	

GENERAL INFORMATION.

ATTENDANCE.

Attendance on all College exercises is strictly required. Absences on account of sickness, or for other satisfactory cause, may be excused, and leave of absence



SOUTH COLLEGE.

will be granted at the request of parents when absolutely necessary. In such cases the absence is excused, but the student is invariably required to make up such work as he may lose by reason of his absence. Reports are sent to parents whenever the absences of their sons exceed a reasonable number. In case of the absences becoming excessive, the faculty will punish the neglect with suspension. Absences incurred at the beginning and end of terms, especially if they involve absence from examinations, and immediately preceding and succeeding holidays, are regarded with especial disapproval and under ordinary circumstances will not be excused.

Each student is expected to have sixteen recitations each week. Three hours of field or laboratory work are regarded as equivalent to one recitation period. The regular gymnasium drills are also regarded as required exercises so far as prescribed. No student is permitted to take a course involving fewer hours of recitation without a special vote of the Faculty.

EXAMINATIONS.

Examinations are held at the close of each term on the studies of that term, and may be either written or oral, or both, at the option of the professor in charge. In addition to these regular examinations, partial examinations and written recitations are held from time to time during the term, with or without notice to the students. Failure to attend an examination, except for reasons of absolute necessity, is regarded as a serious delinquency, and will be dealt with according to the circumstances of each case.

STANDING.

The scholarship of students is determined by the results of the examinations and daily recitations combined.

Students entering with conditions are required to make them up before the end of the term next after that in which they enter.

Students failing to pass in any studies of any term are required to make up such studies before the end of the next term, and they may be specially directed to do so at an earlier date. Students who do not comply with these regulations will be put on probation in scholarship, or lose standing and be only "permitted to recite," or be dropped into the next lower class, as the Faculty may, in each case, decide.

Reports of the standing of the students are made to their parents or guardians at the end of each term.

RULES GOVERNING ABSENCES AND
RE-EXAMINATIONS.

1. No absence from a recitation, a lecture, or a laboratory exercise shall be excused.

2. If the number of a student's absences in any term from the exercises in any subject exceeds the number of exercises per week in the subject, but not double the number, he may, at the discretion of the teacher in charge, be debarred from the term examination in the subject, provided the number of absences is not less than three.

If he is debarred, he must pass on the subject before the first day of the next term or repeat the subject with a following class.

3. If the number of a student's absences in any term from any subject exceeds double the number of exercises per week

in the subject, he must repeat the subject with a following class, provided that the number of such absences must exceed three.

4. If, for special reasons, the head of the department recommends it, the Faculty may vote that a student who would otherwise be required to repeat a subject by Rule 3 be given one examination on the subject. If he fails in this examination, he must repeat the subject.

5. Before a student may take the examination provided for in Rule 4, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the teacher in charge of the examination.

6. The teacher in charge of each subject shall, at the beginning of each week, post in some place easily accessible to the students interested, the number of absences from the exercises of the subject of each student to date.

7. All absences shall be reported weekly to the Clerk of the Faculty, who shall record them.

8. When the number of a student's unexcused and unpermitted absences from the religious and other exercises of the College reaches five, he shall be warned by his class dean; when it reaches ten, he shall be again warned; when it reaches fifteen, he and his parents shall be warned that he is in danger of being dropped from the College rolls; when it reaches twenty, he shall be dropped.

PERMITTED ABSENCES.

9. In case of absence due to prolonged sickness or request from home for urgent reasons approved by the class dean, the student shall, as soon after the absence as possible, present to his dean a written statement of the cause of his absence, after which the dean shall give the student an exact statement of the duration of his absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then take it to the Clerk of the Faculty, and the absences indorsed upon it shall not be counted by the Clerk in making up the number of Rule 8.

When such permitted absence causes the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done by the class during as many of these absences as are required to bring his absences below the debarring number by an examination to be held within a month of the absences.

If he fail in this examination, he shall be debarred from the term examination and required to pass on the subject by a special examination to be held before the first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars, and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

10. When permission to be absent from town has been given to a student by vote of the Faculty or by the President acting for the Faculty, such student shall receive from the Clerk of the Faculty an exact statement of the duration of such absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then return it to the Clerk of the Faculty and the absences indorsed upon it shall not be counted by the Clerk in making up the numbers of Rule 8.

When such permitted absences shall cause the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done during as many of these absences as are necessary to bring his absences below the debarring number by an examination held within a month of the absence.

If he fail in this examination he shall be debarred from the term examination and required to pass on the subject by a special examination to be held before the first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

11. If professors, in whose departments a student has the majority of his hours per week, report to the Faculty that the student is neglecting his work, he and his parents shall be warned that he is in danger of being dropped from the college rolls. If a second such report be made, he shall be dropped.

RE-EXAMINATIONS.

1. A student who fails at the regular term examination, in any subject, shall be entitled to one re-examination.

2. If, for special reasons, the head of the department recommend it, the Faculty may vote that a student who has failed in the re-examination provided for in Rule 1 may be given a second re-examination.

3. Before a student can take the second re-examination provided for in Rule 2, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the instructor in charge of the examination.

4. If, at the beginning of the college year, a student has failed to pass on his conditions of the preceding year in the Departments of Mathematics, Mechanics, Physics—he shall be required to repeat the subjects in which he is still conditioned.

5. When subjects, which closely depend upon each other, are continued through successive terms, the department interested may require that all conditions of any term in those subjects shall be made up within two weeks from the beginning of the next term, in order that the student may go on with those subjects.

GRADUATION.

Students who have pursued the entire course as prescribed and have successfully passed their examinations are recommended to the Trustees for the first academic degree in course. Such recommendations are ordinarily acted upon and the degrees are conferred at Commencement, at which time the students receive diplomas from the President of the College. At Commencement the Faculty awards such honors as it sees fit to those who are to receive degrees. These honors ordinarily consist of a valedictory oration, a Latin salutatory, and other honorary orations and theses.

COMMENCEMENT.

The third Wednesday in June and the three days immediately preceding it are set apart for the exercises in connection with the annual Commencement. On Sunday, the first of these days, a Baccalaureate sermon is preached in the College Chapel at eleven o'clock in the morning; and in the evening a sermon is preached in the auditorium of Pardee Hall before the Brainerd Society of the College by some distinguished minister selected by the Society.

The preacher for 1904 was Rev. Elliott C. Armstrong, D. D., '79, of Williamsport, Pa.

On Monday the Senior Class holds its Class Day exercises on the campus.

On Class Day, 1903, the graduating class presented to the College a memorial gateway, placed at the entrance of the March Athletic Field, facing the Sullivan Road. It is built of granite, on plans prepared by the

architect, Charles W. Bolton, '80, of Philadelphia. The structure is one hundred feet long, twelve feet high, and eighteen inches thick. It embraces a centre gateway for vehicles, two ticket offices surmounted by turrets, two side gates for pedestrians, and is an ornament to that part of the College grounds. It cost about one thousand dollars. It was formally presented by the class on June 16th, 1903.

A fine modern field house was presented to the college by the four classes, 1904, 1905, 1906 and 1907, on Alumni Day of Commencement week 1904. The building is valued at \$3,000, and stands in the southeast corner of the field. It is a beautiful structure of native rock from the Delaware hills, slate roof, set off in front by a porch supported by two large stone pillars. The inside of the building is divided into two large rooms, each fitted with cement floors, casement windows, twenty steel lockers, hot and cold shower baths, toilet, and an offset with radiators for the purpose of drying out clothes. The corner stone was laid June 21st, and the building was opened for the use of the athletic teams October 1st, 1904.

The Alumni and Literary Societies hold their reunions on Tuesday, and orations are delivered before the respective societies in the Society Halls. The annual address before the Alumni in 1904 was delivered by Prof. Francis P. Venable, Ph. D., LL. D., Sc. D., president of the University of North Carolina, with informal addresses by several representatives of reunion classes.

The regular Commencement exercises are held in the auditorium of Pardee Hall on Wednesday morning, the

afternoon being occupied by the Alumni dinner. All these exercises are open to the public, who are cordially urged to be present. Various other exercises of an athletic or social nature are conducted on the part of the students under a general supervision by the Faculty.

DEGREES.

THE FIRST DEGREE.—The degree of *Bachelor of Arts* is conferred on the graduates of the Classical Course; *Bachelor of Philosophy*, on those of the Latin Scientific Course; *Bachelor of Science*, on those of the General Scientific Course; *Bachelor of Science* (in Chemistry), on those of the Chemical Course; *Civil Engineer*, on those of the Civil Engineering Course; *Engineer of Mines*, on those of the Mining Engineering Course; *Electrical Engineer*, on those of the Electrical Engineering Course.

MASTER'S DEGREE.

MASTER OF ARTS.—The degree of *Master of Arts* may be conferred one year after graduation on any *Bachelor of Arts* who has pursued a prescribed course of study, equivalent to sixteen recitations per week during one year in residence, passed the examinations, and presented a satisfactory thesis.

The same degree may be conferred two years after graduation on any *Bachelor of Arts* who shall have devoted at least one year exclusively to advanced study under the direction of the Faculty, passed examinations in the studies pursued, and presented a satisfactory thesis.

Candidates for this degree must in all cases register on or before October 1st, and examinations must be held at the College at least once in each College term. Theses must be presented for approval not later than May 1st. A registration fee of \$5 and tuition fee of \$100 per annum for residents, and \$45 per annum for non-residents, is exacted of all graduate students.

MASTER OF SCIENCE.—The degree of *Master of Science* may be conferred upon any graduate of the Scientific Department upon conditions similar to those prescribed for the degree of Master of Arts.

DOCTOR OF PHILOSOPHY AND OF LETTERS.

The degree of *Doctor of Philosophy* may be conferred three years after graduation on any college graduate who, during three years of continuous residence at the College, shall have devoted himself exclusively to advanced studies under the direction of the Faculty, passed examinations in them, and presented a satisfactory thesis. The candidate must designate three branches of study which he desires to pursue, each in a different department, one major or principal study, and two minor studies. The faculty will recommend for this degree men of high capacity and attainments only. Length of residence or time spent in study constitute no claim for its bestowal.

The regulations governing registration, examination, theses, and fees are the same as for the Master's degree.

Any graduate of a recognized college may be permitted to pursue graduate studies under the direction of the professors in the various departments upon satisfactory evidence of his fitness to do so. No curriculum is prescribed for such students. A course of study is usually arranged after consultation which will meet the specific object each student has in view.

CERTIFICATES.

Students who have been admitted to any department of the College, and have passed satisfactory examinations therein, may obtain certificates of the work which they have done if they have been in attendance not less than one year.

RELIGIOUS INSTRUCTION.

The aim of Lafayette College is distinctly religious. Under the general direction of the Synod of Pennsylvania of the Presbyterian Church its instruction is in full sympathy with the doctrines of that body. At the same time religious instruction is carried on with a view to a broad and general development of Christian man-

hood within the lines of general acceptance among evangelical Christians, the points of agreement, rather than those of disagreement, being dwelt upon.

Prayers are held each morning in the Chapel at 7.50 and religious services in the Chapel Sunday mornings at 11 o'clock. All students are expected to attend these services. No exceptions will be made to this rule for morning prayers. Where there is some exceptional reason assigned by the parents, students will be permitted to attend one of the churches in Easton instead of the Sunday morning service. This permission will only be granted on request of parents and for sufficient reason.

Special sermons are preached before the College from time to time by distinguished ministers. The preachers for 1904 were Rev. J. Ross Stevenson, D. D., New York; F. P. Turner, New York; Rev. James Roberts, D. D., '65, Ambler, Pa.; Rev. John B. Laird, D. D., '92, Frankford; Rev. B. M. Neil, Philadelphia; Rt. Rev. Ethelbert Talbot, D. D., LL. D.; Rev. Daniel H. Martin, '91, Wissahickon; Rev. C. H. Miller, '98, Catasauqua; Rev. W. T. L. Kieffer, Milton; Rev. Charles Lee, Carbondale; Rev. Rufus W. Miller, D. D., '83, Philadelphia; Rev. S. J. Rowland, D. D., Clinton, N. J.; Rev. Henry E. Jackson, '93, Swarthmore; John Willis Baer, New York City; Rev. Plato T. Jones, Easton; Rev. David S. Kennedy, D. D., Allegheny; Rev. Richard S. Holmes, D. D., Philadelphia; Rev. Ford C. Ottman, '83, Stamford, Conn.; Rev. Arthur H. Allen, New Brighton, N. Y.; Rev. John Fox, D. D., '72, New York City; Rev. Robert Hunter, D. D., Philadelphia; members of College Faculty and local clergy.

The preacher for the Day of Prayer for Colleges, 1905, is Rev. Marcus A. Brownson, D. D., Philadelphia.

Instruction in the Bible has always held a prominent place in the College, and a full account of the courses in Bible study will be found on page 19.

LECTURES.

Special courses of lectures are given annually in connection with several departments and will be found under those departments. A more general course of a popular character is given each year.

Among those who have given lectures during the year 1904 are: Prof. William B. Owen, Ph. D., '71, Easton; Prof. F. A. March, Jr., Ph. D., '81, Easton; Rev. Henry Merle D'Aubigné, Paris; C. Spencer Kinney, M. D., Easton; Prof. Toyokichi Iyenaga, Ph. D., Chicago; Prof. Alvin Davison, Ph. D., Easton; John Sparhawk, Jr., Esq., Philadelphia; Rev. Arthur J. Brown, D. D., New York; Prof. Robert W. Hall, Lehigh University; Lieutenant Godfrey Lynet Carden, U. S. Navy.

TERMS AND VACATIONS.

The College year is divided into three terms, with intervening vacations, as given in the Calendar on page 5. All the classes are examined at the close of each term, and a report sent to the parent or guardian. Students are required to be present punctually at the beginning of each term, and are not allowed during term-time to be absent from town, except by written permission from the President.

The Wednesday after the 20th of October in each year is observed as Founders' Day, in memory of those who founded the College and of those who have since contributed to its usefulness. On Founders' Day, 1904, an address was delivered by Dr. Clay W. Holmes, '69, editor of *The Elmira Advertiser*, Elmira, N. Y.

BUILDINGS. LABORATORIES. LIBRARIES.

The College grounds are situated upon the summit of a beautiful hill, overlooking the city of Easton. They are reached by a flight of stone steps, which ascend the bold front of the hill directly from the head of Third Street, or by electric cars, which skirt the face of the hill by a gradual incline. At the head of the steps stands the monument erected by the Alumni Association to their comrades who "died for the Union." The grounds contain about forty acres, terraced and laid out under the direction of Donald G. Mitchell. The buildings upon the campus are thirty in number. The oldest of these is

SOUTH COLLEGE.

The central portion of this structure is the original College building, erected in 1833. It contains several lecture-rooms and a number of dormitory rooms. Two wings were added to the original building, which contain the College Chapel and lecture-rooms for the English, Latin, and Greek Departments. A new pipe organ, the gift of the Class of 1874, and an electric chandelier, the gift of the Class of 1900, were placed in the College Chapel in 1900.

THE VAN WICKLE MEMORIAL LIBRARY.

The Van Wickle Library was dedicated on May 30th, 1900. It has given to the College one of the most needed additions to its equipment. A beautiful building of Pompeian brick and terra cotta, thoroughly furnished with the most approved appliances for library work, it is at once a most beautiful and useful feature in the College's development. It contains a large reading room, in which the periodicals and books of most constant reference are to be found; a reference book department; a large room for the general storage of the Library; Librarian's room, and small rooms for special work.

PARDEE HALL.

The most commanding position on the campus is occupied by this building, the most conspicuous evidence of the liberality of the late Ario Pardee, which reached to every department of the College. Here the departments of Civil, Mining, and Electrical Engineering are supplied with thoroughly-equipped laboratories, and lecture-rooms, and the museums of these departments, and of General Geology, Mineralogy, and Natural History, are to be found. The Ward Library and the handsome rooms of the two Literary Societies are also in this building, and the central portion of the second and third floors of the main building contains a beautiful auditorium, in which the Commencement exercises, lectures, and other public entertainments are held.

JENKS BIOLOGICAL HALL.

This building was erected in 1864-65 by the late Barton H. Jenks, of Philadelphia. It was recently entirely remodeled.

THE GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY,

Completed in 1902, is occupied by the departments of Chemistry and Metallurgy. The building consists of three stories, and is constructed of Indian stone, Colonial brick, and gray terra cotta. It is fireproof, with steel and cement floors, and gives a thoroughly modern equipment to these departments. This building contains also the Henry W. Oliver Chemical and Metallurgical Library.

THE ASTRONOMICAL OBSERVATORY,

In addition to the observatory proper, contains a lecture-room, with accommodations for the students in Astronomy.

WEST COLLEGE

Contains the lecture-room of Dr. Francis A. March and the offices of the Registrar and Treasurer of the College.

THE GYMNASIUM,

which has already been sufficiently described on page 21, contains a complete equipment for physical training.

THE DORMITORIES.

A complete reorganization of the dormitory system was effected in the summer of 1900 by the building of central structures, known as Knox and Fayerweather Halls, to connect Blair and Newkirk Halls and Martien and Powell Halls respectively, and the facing of the completed buildings with mottled Pompeian brick, handsomely trimmed with red terra cotta. The archi-

tectural beauty of the buildings is in marked contrast with the former appearance of the separate buildings. These halls are connected with McKean Hall in a common steam plant. A complete sanitary plumbing system of baths, sinks, closets, and electric lights has been installed in all the buildings. These improvements leave nothing to be desired for the health and comfort of the students.

INFIRMARY.

A building on the extreme northeast corner of the campus, facing upon McCartney Street, is set apart for the use of sick students, thus securing quiet and complete isolation in case of the occurrence of any contagious disease.

This building is intended solely for the use of students rooming in the College buildings.

BRAINERD HALL.

This building for the Y. M. C. A., the gift of J. Renwick Hogg, Esq., '78, of the Board of Trustees, was erected in 1902. It is a three-story gray stone building in the Tudor Gothic style. It contains a large room for the meetings of the society, and reading, writing, and committee rooms; also a trophy room for the Athletic Association, a room for the collection of curios from foreign missionary fields, and bowling alleys in the basement.

Its object is to afford a home under active Christian influences for all forms of student life.

The remaining buildings consist of a large GREENHOUSE, a useful adjunct to the Department of Botany, and also supplying flowers and plants for the adorn-

The Literary Societies, also, have libraries numbering about 6,000 volumes, largely of a literary character, which valuably supplement the more solid libraries of the College.

The College Library contains a papyrus scroll, five feet long, from a mummy at Thebes, with a hieratic inscription—pronounced by Seyffarth the finest he has seen—presented by the late Hon. John W. Garrett, of Baltimore, of the Class of '37, and a collection of prints and medals of General Lafayette presented by President William C. Cattell, D. D.

There is also a full-length portrait of Lafayette, painted by Healey at the Chateau LaGrange, from Ary Sheffer's famous painting, and presented by the late Dr. Thomas W. Evans, of Paris.

ALUMNI ALCOVE.—A year ago there were gathered for the College Library a collection of books and pamphlets written by the Alumni, Faculty, and Trustees of the College. These have been set apart to constitute a "Lafayette Library." It now contains a full set of the College Catalogues from 1832 to the present time; all the Commencement addresses, and other official publications of the College of every sort. The whole embraces a unique and valuable collection of three hundred volumes, that represent the literary activities of the College.

The LIBRARIES have received gifts, which are hereby gratefully acknowledged, from the following individuals and institutions:

Individuals:

C. N. Andrews, '76; Mrs. B. T. Armstrong; Rev. Addison Ballard, D. D.; Edwin Atlee Barber, M. D., Ph. D., '73 (5); Prof.

A. A. Bloomberg, Ph. D. (88) ; Rev. E. Clark Cline (7) ; Rev. S. J. Coffin, Ph. D. (68) ; B. F. Fackenthal, Jr., '78 ; Rev. M. A. Filson, '98 ; Rev. W. H. Filson, '68 ; J. M. Hackett ; Reuben Haines, '62 ; Prof. William S. Hall, '84 (3) and plates ; Hugh Hastings (2) ; Dr. J. B. Heller, '74 ; Dr. J. S. Hunt ; John W. Jordan, LL.D. ; Charles McIntire, M. D., '68 (2) ; Prof. F. A. March, Sr. (2) ; Rev. Samuel A. Martin, D. D., '77 ; New Jersey State Geologist (7) ; Mrs. Fairman Rogers ; Hon. J. H. Shull ; Herman Simon (220) ; Rev. J. F. Stonecipher, D. D., '74 (6) ; George W. Twitmyer, four pamphlets ; H. A. Ward ; President E. D. Warfield (3) ; Clay W. Holmes (3) ; H. H. Welles (2) ; F. K. Detwiller (6) ; William Edgar Geil, '90 (2) ; Ethan Allen Weaver, '74 (3).

Firms and Institutions:

Carnegie Free Library, Braddock, Pa. ; Carnegie Institution of Washington, one volume and one pamphlet ; Derrick Publishing Company, Oil City, Pa. ; General Assembly of Presbyterian Church (2) ; International Com. Y. M. C. A. (2) ; Iowa Geological Survey ; Imperial Japanese Commission to the Louisiana Purchase Exposition ; Jewish Publication Society of America ; The John Crerar Library ; 1905 Melange Board ; Moravian Congregation of Bethlehem ; New Jersey State Board of Health ; New Jersey State Library ; New York University ; Ohio Board of State Charities ; Pennsylvania Society, Sons of the American Revolution ; Pennsylvania State Library (28) ; Royal Society of Canada (2) ; Seaboard Steel Casting Company, Chester, Pa. ; Theta Delta Chi Fraternity ; University Club, of Syracuse, N. Y. ; University of St. Andrews ; Ward Library ; Washington Literary Society ; Siamese Royal Commission, Louisiana Purchase Exposition.

United States Government: Bureaus and Departments, viz.:

Bureau of American Ethnology ; Census Office ; Civil Service Commission ; Department of Agriculture (5) ; Department of Commerce and Labor (3) ; Department of Education ; Department of Interior ; Interstate Commerce Commission ; Geological Survey (8) and 8 pamphlets ; Library of Congress (4) and 1 pamphlet ; National Museum (1) and 1 pamphlet ; Naval Ob-

servatory; Navy Department; Smithsonian Institution (4) and 2 pamphlets; Superintendent of Documents (24), 7 pamphlets and one set of plates; Treasury Department.

The Class of 1892 at their decennial reunion in 1902 established an alcove in the Library devoted to American literature. One hundred and eighty-two volumes have been purchased and additions will be made from time to time.

SCIENTIFIC COLLECTIONS.

These are extensive and valuable, and are rapidly increasing from year to year by gifts from societies and individual donors, and by special appropriations in addition to the fees for registration and matriculation.

Among the most valuable of the collections may be mentioned the extensive Herbarium, collected by Prof. Thomas C. Porter during forty years of enthusiastic labor; it is especially rich in North American plants, and is believed to contain the most complete Flora of Pennsylvania in existence and the series of Ward's celebrated casts, illustrating Geology and Palæontology.

The apparatus in the Department of Physics and Applied Mechanics, the instruments used in the Departments of Astronomy and Engineering, and the scientific equipment of the numerous and extensive laboratories, meet the demands of advanced instruction in these departments; a special feature, however, is the series of nine hundred Wall Charts, executed at the College by Gustave Garnier, under the direction of the Professors in the Departments of Astronomy, Chemistry, Physics and Applied Mechanics, Metallurgy, and Natural History. There are valuable models in Machine Drawing, Stone Cutting, Crystallography, and Architecture.

COLLEGE SOCIETIES.

LITERARY SOCIETIES.

The *Washington* and *Franklin* Societies were organized early in the history of the College and are conducted by the undergraduates. Both Societies have

well-furnished apartments in Pardee Hall, and valuable libraries. They meet every Wednesday evening for literary exercises, consisting of orations, essays, and debates. A generous rivalry for College honors exists between them, and each year representatives of the two societies from the Junior Class engage in a public contest in oratory. On the day before Commencement the societies hold reunion meetings in their halls. These societies are an important part of College life and work, and *all the students are strongly advised to join them.*

BRAINERD EVANGELICAL SOCIETY.

The *Brainerd Evangelical Society*, as a society of inquiry, meets each Thursday evening and on the first Friday of each month in the interest of missions, and for the promotion of Christian effort. Its public anniversary is held on Sabbath evening of Commencement week, at which time a sermon is preached usually by some former member of the Society. In 1904 the preacher was Rev. Elliott C. Armstrong, D. D., '79, of Williamsport; for 1905 the preacher is Rev. John Balcom Shaw, D. D., '85, of Chicago.

BIOLOGICAL SOCIETY.

The *Biological Society* is for the purpose of making its members intelligent concerning the important biological questions of the day, enabling them to appreciate the value of research in nature. The membership consists of those students of the three upper classes who are either prospective or present members of the classes in Biology, and of such graduate students as are interested in the laws of life comprehended through the Natural History Sciences.

CHEMICAL CLUB.

The *Chemical Club* meets every Thursday at seven o'clock p. m., for reading and discussing papers contained in the current chemical magazines, and to listen to lectures from visiting chemists. During 1904-05 the Club listened to lectures from Dr. Harvey W. Wiley, Prof. M. T. Bogert, and C. F. Chandler. These lectures are open to the public.

EXPENSES.

The tuition is \$100 per annum in all departments. Sons of ministers of the Presbyterian Church and candidates for its ministry receive free tuition in the Classical Course, and are charged one-half tuition in the Technical courses.

The other College charges are as follows:

General Expenses	\$8 00	a term.
Library and Reading-room	5 00	"
Gymnasium	2 00	"

The annual College charges are, therefore, for those who pay tuition in full, \$145.

Entrance Fees.—Each student pays \$5 when he is registered for examination on entering College, and \$10 when he is matriculated, thirty days afterward. These fees are appropriated to the Library Fund and to the increase of the scientific collections and apparatus. No fees are charged for diplomas.

Laboratories.—Apparatus for the use of students in the Chemical Laboratories will be furnished and charged in their account, and the charge canceled for that returned in good condition. Chemicals and all

other materials will be charged according to the average cost. A deposit sufficient to meet these expenses is made on entering the Laboratories. Members of the Classical Department are admitted to all the privileges of the Laboratories while studying General Chemistry, and, for the present, without charge for the aid of the professor in attendance; each student will, however, pay for chemicals which he uses, and for any apparatus which he may break or injure. In the Physical Laboratory a fixed charge of \$5 per term is made for supplies and the use of apparatus.

Scholarships.—The endowed scholarships providing free tuition in the Classical Course will hold good for the Latin Scientific Course, but students in the other courses of the Pardee Scientific Department are required to pay one-half of the regular tuition fee in addition to the scholarship.

Aid is also given to young men of ability and good moral character who are dependent on their own efforts for their education. The amount will depend on the necessities of the applicant, but in no case will exceed the amount of the tuition fees in the Classical and Latin Scientific Courses, or one-half the tuition fees in the other Technical Courses. Application for such aid should be made to the President. No aid is granted to students pursuing special or incomplete courses of study.

BOARD, ROOMS, WASHING.

In all cases the place of boarding must be approved by the Faculty. The price of table board in clubs managed by the students at present averages from \$3 to \$3.50 per week. Board, including furnished room, in

private families, is from \$4.50 to \$6 per week. Washing costs 40 cents per dozen pieces.

Unfurnished rooms in the College buildings rent for \$5 to \$30 a term (average \$15.88); unfurnished rooms adjacent to the College premises for \$12 to \$16 a term, or furnished rooms for \$15 to \$30 a term.

Students are expected to room in the College dormitories unless they receive permission to room elsewhere. If they do not occupy College rooms, they are subject to an assessment to meet the loss to the College for rooms left vacant. The reason for this rule is that the funds of the College have been invested in the dormitories in order to secure cheap and convenient lodgings for the students, and it is to the advantage of all that the buildings should be occupied, the income from the investment being essential to the work of the College, and the students being protected against exorbitant rents.

Information in regard to the selection of rooms can be had from Professor Moore, Inspector of College buildings, the buildings being open for inspection during each term, and three days preceding the first day of each term. Rooms are assigned only to students who have been admitted to College, or who present full certificates from authorized schools, in the order of their application.

The rules of the Board of Trustees require that all College bills shall be paid in advance. For the convenience of the students it is arranged that payment of the bills shall be made by the Seniors on the first Thursday of each term, by the Juniors on the first Friday, by the Sophomores on the first Saturday, and by the Freshmen on the first Monday. No student is regarded

as regularly enrolled for any term until his bill is paid. He may be dropped from the roll for neglect of his bill at any time upon notice from the Treasurer to the Faculty.

Where it is impossible for a student to pay his bill on the day it is due, the Prudential Committee has power to extend the payment of the bill for not more than thirty days, provided that a written request is filed with the Treasurer *on the day the bill is due*, stating a satisfactory reason for the extension. A penalty of 10 per cent. will be added to every bill remaining unpaid after the expiration of thirty days, and no student whose bill is unpaid shall be permitted to take the term examinations. Those desiring the bill to be sent home, must call at the Treasurer's office during the first week of the term, acquaint themselves with the items of the bill, make the request that it be sent and give the address to which it is to be sent.

The care and regulation of the dormitories are under the direction and management of a Board of House Representatives, elected by the students. House rules are enacted and enforced by the Board. The Parietal Committee, composed of the Inspector of Buildings and Officers of Instruction who reside in the dormitories, acts as a court of appeal.

Fuel Deposit.—The Treasurer also, on behalf of the Committee of Students, collects with the College bills \$6 at the beginning of the first and second terms for fuel. The unexpended balance, if any, is refunded by the Committee at the close of the year. Of late the average cost for heating has been \$12.68 for each student in the steam-heated dormitories, and \$8.61

in the buildings heated by warm-air furnaces or stoves. The steam-heated dormitories are also lighted by electricity, the cost of which to each of the occupants is about \$6 a year.

A deposit of \$1 is also made at the beginning of each term to pay for public damages, the unexpended balance of which is returned to the student at the end of the year.

Annual Expenses.—Some money for books and other incidental expenses will be needed; but, with close economy, the total annual expenses—exclusive of tuition, clothing, and traveling expenses—need not exceed \$255, as will be seen from the following summary:

	Liberal	Moderate	Minimum
General College Expenses	\$24 00	\$24 00	24 00
Charge for College Reading-rooms, Gymnasium, etc.	21 00	21 00	21 00
Board, 36 weeks, at \$3 00 to \$4.00	144 00	117 00	108 00
Rent of College-room, \$15 to \$90	90 00	36 00	15 00
Light and Fuel	18 00	15 00	12 00
Washing	25 00	16 00	9 00
Tuition	100 00	100 00	100 00
Books and stationery	38 00	21 00	16 00
	\$460 00	\$350 00	\$305 00
Deduct for Sons of Ministers <i>et al.</i> , in Classical Course			100 00
			\$205 00
Deduct for same in other courses			50 00
			\$255 00
Lowest charges for necessary expenses	{ Classical		\$205 00
	{ Technical		255 00

Laboratory fees and damage assessment, which vary in amount, must also be added, while the personal expenses for clothing, etc., must be estimated according to individual expe-

rience. The first year will be made more expensive by the fees for registration and matriculation, and furnishings for room; \$300 will therefore be a small allowance.

Parents and guardians at a distance may deposit funds with some member of the Faculty, who will pay particular attention to the pecuniary concerns of the student, settling his bills, and transmitting an account of the expenditure, for which services he will charge a commission. It is strongly recommended that parents furnish their sons with little beyond what will meet their necessary expenses.

BEQUESTS AND DEVISES.

Each State has special statutory regulations in regard to wills, and it is most important that all testamentary papers be signed, witnessed, and executed in all other respects according to the laws of the State in which the testator resides. In all cases, however, the name of the corporation must be accurately given, as in the following forms:

I give, devise, and bequeath to "The Trustees of Lafayette College," in Easton, Pennsylvania, their successors and assigns forever, the sum of ———— dollars, to be invested by said corporation in good real estate security, and the interest accruing therefrom to be applied to the support of the Professors in said College.

I give, devise, and bequeath a certain lot, situated, etc., to "The Trustees of Lafayette College," in Easton, Pennsylvania, and to their successors and assigns forever, for the uses and purposes of said College, according to the provisions of its charter.

PRIZES.

The following prizes are offered annually :

THE FRANCIS A. MARCH PRIZE IN ENGLISH.

A prize of thirty dollars in books was given from 1862 to 1881 by the late Rev. William C. Fowler, LL. D., of Durham, Connecticut, and since 1881 has been continued by Henry A. Potter, M. S., Class of '77, of New York, under the title of "The Francis A. March Prize," upon the following conditions :

"A committee of at least three shall be chosen by the Faculty to determine which student of the Senior Class has made the greatest proficiency in English Philology.

"The decision of the committee is to be made after attending an examination in some English classic, conducted by the Professor of English, and after reading essays written by the several members of the class, which shall contain a discussion of the language of some English classic."

The subject in 1905 will be the works of Thomas Jefferson.

THE ASTRONOMICAL PRIZE.

A prize of thirty dollars in gold is awarded to the student making the greatest progress in the study of Astronomy in the Senior year.

MATHEMATICAL PRIZES.

Two prizes of the value of twenty dollars each are offered in the Department of Mathematics to those students of the Junior Class, one in the Classical and general courses of the Scientific Department, and one in the Technical Departments, who shall have exhibited during the first three years of the course the greatest proficiency in the study of Mathematics.

These prizes were founded, as was the astronomical prize above mentioned, in 1867, by Professor Traill Green, M. D., LL. D.

THE LOUNSBURY PRIZE IN CHAUCER.

A prize, consisting of books, is given to that student of the Sophomore Class who shall present the best essay upon some one of the works of Chaucer. This prize was given in 1896 by Thomas R. Lounsbury, Professor of English at Yale University, and will be continued by friends of the College as the Lounsbury Prize in Chaucer.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE.

A prize, consisting of books of the Early English Text Society, of London, is given to that student of the Junior Class who shall at the close of the Junior year pass the best examination in "English before Chaucer." The examination is based upon selected texts announced from year to year, which in 1905 will be "Alfred's Meters."

This prize was founded in 1871.

THE NEW SHAKSPERE SOCIETY'S PRIZE.

A prize of publications of the "New Shakspeare Society," of London, is awarded to that member of the Junior Class who passes the best general examination upon Shakspeare, his works, life, character, etc.

This prize was founded in 1875.

THE CLASS OF '83 PRIZE.

A prize of the value of fifteen dollars is annually awarded to that member of the Sophomore Class who shall have attained the highest standing in his division of the class in Trench on The Study of Words.

This prize was founded by the Class of 1883 at their graduation.

COLEMAN BIBLICAL PRIZES.

Three prizes, each of the value of twenty dollars, are awarded to those students of the Freshman Class who have attained the highest standing in the several divisions of Biblical study in that year.

These prizes were founded by the Rev. Lyman Coleman, D. D., in 1880.

PRIZES IN ORATORY.

The Washington and Franklin Literary Societies appropriate one hundred dollars a year for prizes in oratory. Four contestants are chosen from each Hall to take part in the Junior Oratorical Contest, which is held in May. In the presence of a public audience three Judges, approved by the Faculty, hear the speakers and award the prizes. Their decision is based on the merits of the performances as to originality and force, with reference both to composition and delivery. The first prize is fifty dollars, the second prize thirty dollars, and the third prize twenty dollars.

PRIZES IN DEBATE.

Three prizes, of the total value of fifty dollars, are awarded to the successful competitors in a Senior contest in debate, held on Washington's Birthday in each year, between three contestants from each of the literary societies, chosen by a competitive debate in each society prior to December 1st in the previous year. The amount of the prizes and the conditions of the award are similar to the Junior oratorical contest. The first of these contests was held in 1894. The subject for debate in 1905 is:

"RESOLVED, That Congress should make more stringent regulations in regard to the admission of alien immigrants to the United States and its possessions, extending the principle of the Chinese exclusion act and embodying the requisites of American citizenship."

CIVIL ENGINEERING PRIZE.

A prize of the value of fifty dollars, the gift of Carroll Phillips Bassett, C. E., Ph. D., of the Class of 1883, is annually awarded to that member of the graduating class who presents the best graduating thesis and attains the highest standard of scholarship in the Civil Engineering course.

THE PARK PRIZE IN LATIN.

A prize of fifteen dollars for the Latin Department has recently been founded by Mr. Samuel R. Park, A. M., '84. In 1905 it will be awarded, on the work of the second and third terms Freshman Class, for excellence in Horace.

HISTORICAL ESSAY PRIZE.

A prize, consisting of a copy of his work, "*The Marquis de Lafayette in the American Revolution*," is given annually by Charlemagne Tower, Jr., LL. D., of Philadelphia, United States Minister to Germany, to that member of the Senior Class who shall, on or before the first day of October, present the best essay on some subject connected with the relations of *France and the United States*. The essays must not exceed three thousand words in length. The subject for the year 1905 is: "*Lafayette in the American Revolution*."

THE CHEMICAL ESSAY PRIZES.

A prize of five dollars in books is awarded each term to that member of the Junior or Senior Class who shall present the best term theme on some Chemical subject.

THE GILBERT PRIZE IN OLD ENGLISH.

By the will of Howard Worcester Gilbert, who died in Chester County, March 5th, 1895, a bequest was left to the College, with the provision that a gold medal of the value of forty dollars should be awarded every two years to the student writing the best essay on the Old English Language and Literature, beginning with Beowulf, in the earliest Anglo-Saxon period, and extending down to the year 1070. Should the competitors be of equal merit, preference is to be given to residents of Pennsylvania.

The medal is an inch and three-fourths broad, three-sixteenths of an inch thick, and contains on its face a relief portrait of King Alfred, with the date 871-901, surmounted by the Anglo-Saxon phrase, "Næs he gold hwæte." The reverse shows a garland encircled with the legend, "Howard Worcester Gilbert Old

English Prize. Founded 1895." Space is left for the name of the recipient.

This prize will be awarded at the Commencement of 1906. It is open to competition of students of Anglo-Saxon in the graduate courses of 1906-07 and 1908-09. The essay must be handed in by May 1st, 1906.

'85 PRIZE IN PHYSICS.

The Class of 1885 founded a prize in 1897 in the sum of \$500, the annual income of which is given to that member of the Junior Class who attains the highest rank in the studies of Mechanics and Physics.

THE BLOOMBERGH PRIZE.

The Class of 1888 at its Decennial Reunion subscribed the sum of \$500, the annual income of which is awarded to that member of the Junior Class who shall attain the greatest proficiency in the study of the French and German languages and their literatures.

THE B. F. BARGE GOLD MEDAL.

A prize of a gold medal of the value of \$100 was founded by Benjamin F. Barge, Esq., of Mauch Chunk, Pa., to be awarded to that member of the Senior Class who shall deliver the best oration in an annual contest to be held on Memorial Day, May 30th. The contestants, not more than six in number, are to be chosen by a committee of the Faculty from those members of the Senior Class, who shall hand in orations on or before May 1st upon topics assigned by the committee not later than March 15th of each year.

BARGE MATHEMATICAL PRIZES.

By the bequest of the late Benjamin F. Barge, Esq., of Mauch Chunk, three prizes have been established for excellence in mathematical studies. These prizes will be awarded for the first time in June, 1905, to members of the Sophomore Class for excellence in the solution of original problems.

THE R. B. YOUNGMAN GREEK PRIZE.

The Class of 1884, at its vigintiennial reunion, subscribed the sum of \$500, the income of which is to be awarded to that member of the Sophomore Class who shall attain the greatest proficiency in Greek.

NOTE.—In all cases where a prize is awarded to an essay or oration the successful competitor must hand to the proper authority two typewritten copies of his production before receiving the prize, if he is requested to do so.

RECENT ADDITIONS.

THE COLLEGE has received from the Alpha Cement Company, the cement necessary for the laying down of a large number of new walks on the campus.

THE DEPARTMENT OF ELECTRICAL ENGINEERING has received valuable favors from Joseph Dixon Crucible Company, Jersey City, N. J.; Easton Power Company; General Electric Company, Schenectady, N. Y.

THE DEPARTMENT OF MINING ENGINEERING AND GRAPHICS has received a spur wheel casting from T. O. Werner, '00, Bangor; blue prints, Pennsylvania Coal Company, Shamokin; photograph of mine car, J. E. Anderson, '94, Hazelton; working drawings of mine car, J. P. Jennings, '04, Forest City; an eighty-inch model of the Manheim slide rule, Keuffel & Esser Company, New York; 31 volumes United States Coast and Geodetic Survey, Prof. S. J. Coffin, Easton; 1 volume mineral resources, United States Department of Interior, Washington; drawing of head frame, J. M. Gilland, '05, Shamokin; 12 volumes, Prof. S. J. Coffin, Easton.

Gifts and favors to the Department of Physics: W. J. Daub & Son, Easton, musical instrument.

THE DEPARTMENT OF CHEMISTRY AND METALLURGY has received gifts from James Gayley; George H. Oliver; The Casella Color Company; The Baker & Adamson Chemical Company; J. W. Turrentine; William H. Nichols; J. H. Wilson; W. S. Creveling; H. B. Greensted; Louis Anderson, Jr.; D. E. Latham, and J. E. Carpenter.

THE DEPARTMENT OF GEOLOGY AND MINERALOGY has received from John J. Howard, '01, a set of ore samples, illustrating the character of the iron ores at Pulaski City, Va.

DEGREES CONFERRED.

HONORARY DEGREES.

June 22d, 1904.

DOCTOR OF DIVINITY.—Rev. Edward Grier Fullerton, Ph. D., Wilkesbarre, Pa.; Rev. Elliott C. Armstrong, '79, Williamsport, Pa.; Rev. John B. Laird, '92, Frankford, Pa.

DOCTOR OF LAWS.—W. H. Nichols, President of the American Chemical Company, of New York City.

DOCTOR OF SCIENCE.—Francis P. Venable, President of the University of North Carolina.

DEGREES IN COURSE.

June 22d, 1904.

BACHELOR OF ARTS.—H. D. Bailey, Pa.; E. H. Barnes, N. J.; C. H. Canning, Pa.; R. R. Chamberlin, Pa.; T. M. Chidsey, Pa.; H. A. Clark, N. J.; J. E. Coolidge, Pa.; E. R. Dooley, N. Y.; E. E. Dreisbach, Pa.; W. M. Duncan, Pa.; A. S. Fox, Pa.; R. M. Freed, Pa.; J. R. Frow, Pa.; J. Hodgson, Pa.; G. A. Hulbert, N. J.; W. W. Johnston, Pa.; J. J. Kehler, Pa.; W. M. Kieffer, Pa.; F. J. Kleinbans, Pa.; E. R. Lavers, Pa.; T. Lee, Pa.; J. N. McDowell, Md.; C. M. Means, Pa.; H. M. Morey, Texas; W. G. Morgan, England; E. T. Rehrig, Pa.; S. L. Roberts, Pa.; J. A. Root, Pa.; F. W. Sebring, Pa.; R. F. Snyder, Pa.; J. A. G. Stitzer, Pa.; J. A. Van Atta, N. J.; R. G. Whitesell, Pa.; A. L. Wolff, Pa.; L. S. Wolff, Pa.; A. H. Woodworth, Pa. Total, 36.

BACHELOR OF PHILOSOPHY.—F. K. Detwiller, Pa.; F. A. Frear, Pa.; J. E. Iszard, N. J.; W. C. Kennedy, N. J.; O. Y. Kyte, Pa.; H. M. Merritt, Pa.; J. F. Parsons, Pa.; F. W. Shaw, N. Y.; T. F. Soles, Pa.; L. D. Swingle, Pa.; H. A. Theis, Pa.; J. H. Wilson, Md. Total, 12.

BACHELOR OF SCIENCE (in Chemistry).—L. A. Anderson, Jr., N. J.; C. G. Beadenkopf, Del.; F. A. Blaicher, N. J.; C. L. Bryden, Pa., 1902; J. E. Carpenter, N. J.; J. H. DeLong, Pa.; R. N. Hart, Pa.; H. M. Miller, N. J.; H. H. Werner, Pa. Total, 9.

CIVIL ENGINEER.—C. L. Bolton, Pa.; J. A. Ernst, Pa.; T. O. Gilland, Pa.; R. Hand, Pa.; J. P. Jennings, Pa.; W. Johnston, Pa.; L. D. Ott, Pa.; F. H. Raub, Pa.; J. W. Smith, Pa.; D. Styer, N. J.; J. E. Werner, Pa. Total, 11.

MINING ENGINEER.—D. A. Hatch, Pa.; F. G. Wilcox, Pa. Total, 2.

ELECTRICAL ENGINEER.—G. M. Castles, N. J.; C. T. Hilliard, Pa.; A. T. Koehler, Pa.; C. F. Nagle, Pa.; G. E. Post, N. J.; C. J. Walker, Pa. Total, 6.

MASTER OF SCIENCE.—H. S. Brown, 1899; A. E. Yetter, 1899. Total, 2.

Total—First Degree, 76; Master's Degree, 2.

From the opening of the College to the present time, 5,252 students have been enrolled; of these 2,076 have received the First Degree.

COMMENCEMENT DISTINCTIONS, 1904.

HONORS.—Theron Lee, Carbondale, Pa.; James Henry De Long, Hancock, Pa.; Joseph Paul Jennings, Forest City, Pa.; Earl Roy Lavers, Easton, Pa.; Henry Weil Werner, Bangor, Pa.; Clarence Floyd Nagle, York, Pa.; Edward Harold Barnes, Perth Amboy, N. J.

ORATIONS.—Harry Daniel Bailey, Easton, Pa.; Fred. Adam Blaicher, Newark, N. J.; Charles Hewson Canning, West Chester, Pa.; Raymond Moore Freed, Perkasio, Pa.; Richard Newell Hart, Easton, Pa.; John Estell Iszard, May's Landing, N. J.; Forrest Jacob Kleinhans, Easton, Pa.; Alfred Theodore Koehler, Easton, Pa.; John Frederick Parsons, Media, Pa.; George Edwin Post, Phillipsburg, N. J.; Frank Wilson Sebring, Jersey Shore, Pa.; Leroy Dey Swingle, Dunmore, Pa.; Henry August Theis, Germania, Pa.; Leroy Senour Wolff, Greensburg, Pa.; Arthur Heath Woodworth, Sayre, Pa.

PRIZES AWARDED.

SENIOR PRIZEMEN.

THE FRANCIS A. MARCH PHILOLOGICAL PRIZE: Theron Lee, Carbondale, Pa.

THE ASTRONOMICAL PRIZE: John F. Parsons, Media, Pa.

THE BASSETT PRIZES IN CIVIL ENGINEERING:

FIRST PRIZE: Divided equally between Joseph P. Jennings, Forest City, Pa., and John E. Werner, Bangor, Pa.

SECOND PRIZE: Thomas O. Gilland, Shamoin, Pa.

SENIOR DEBATE: March 1st, 1904.

QUESTION: *Resolved*, That President Roosevelt's course in regard to Panama has been wise and patriotic.

SPEAKERS.

Washington Hall, Affirmative. *Franklin Hall, Negative.*

John Frederick Parsons,

Howard Milton Merritt,

William Wallace Johnston,

Gustavus Adolphus Hulbert,

Franklin William Shaw,

Raymond Moore Freed.

FIRST PRIZE: Franklin W. Shaw, Patchogue, N. Y.

SECOND PRIZE: Gustavus A. Hulbert, Brookside, N. J.

THIRD PRIZE: Raymond M. Freed, Perkasio, Pa.

B. F. BARGE ORATORICAL MEDAL, \$100, Franklin W. Shaw, Patchogue, N. Y.

THE CHEMICAL ESSAY PRIZES (Junior or Senior):

FIRST TERM: Hugh McN. Miller.

SECOND TERM: James H. DeLong and Richard N. Hart.

THIRD TERM: J. Hunt Wilson.

JUNIOR PRIZEMEN.

THE MATHEMATICAL PRIZES:

CLASSICAL DEPARTMENT: Edward I. Campbell, Easton.

TECHNICAL DEPARTMENT: Oscar L. Morgenstern, Easton.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE: David W. Phillips, Scranton.

THE "NEW SHAKSPEARE SOCIETY'S PRIZE": James Sigman, West Chester.

JUNIOR ORATORICAL PRIZES, Contest May 16th, 1904.

SPEAKERS.

Franklin Hall.

HENRY C. EDGAR,
 EDWARD F. FARQUAR,
 CHRISTIAN A. S. KEMPER,
 CLYDE K. MILLER,

Washington Hall.

DUDLEY E. LATHAM,
 JAMES SIGMAN,
 GEORGE H. FICKES,
 JAMES L. NESBITT.

FIRST PRIZE: Fifty dollars, Henry C. Edgar, Easton.

SECOND PRIZE: Thirty dollars, James L. Nesbitt, Colora, Md.

THIRD PRIZE: Twenty dollars, Edward F. Farquar, Bethlehem.

THE CLASS OF '85 PRIZE IN PHYSICS: Edwin D. Chase, Easton.

THE BLOOMBERGH PRIZE IN MODERN LANGUAGES: James Sigman, West Chester.

SOPHOMORE PRIZEMEN.

THE LOUNSBURY PRIZE IN CHAUCER: Francis Downs, Dover, Del.

CLASS OF '83 ENGLISH PRIZE: Technical, Charles E. Stryker, Phillipsburg, N. J.; Classical, Frederick E. Stockton, Pacific Grove, Cal.

FRESHMEN PRIZEMEN.

LYMAN COLEMAN BIBLICAL PRIZES.

SECTION A: Frank R. Bacon, Bridgeton, N. J.

SECTION B: Emerson O. Houser, Wilkesbarre.

SECTION C: Divided equally between Frank A. Souders, Phillipsburg, N. J., and Daniel B. Woolcock, Mahanoy City.

CLASS MONITORS.

Appointed for general excellence in study:

SENIOR CLASS: J. L. Jones.

JUNIOR CLASS: F. E. Stockton.

SOPHOMORE CLASS: C. E. St. John.

FRESHMAN CLASS: Nathaniel Jacobs and C. J. Ruch.

Theses presented by Candidates for Degrees in the Technical Courses of the Pardee Scientific Department.

June 23d, 1904.

1. New Method of Testing Cement.
CHARLES LEWIS BOLTON, Philadelphia.
RICHARDSON HAND, Wilkesbarre.
2. The Bearing Value of Bolts in Wood.
JOSEPH PAUL JENNINGS, Jersey City.
JOHN EDWARD WERNER, Bangor.
3. Practical Applications of Venturi's Principle.
LLOYD DUTT OTT, Easton.
FRANK HOWARD RAUB, Easton.
4. Sanitary Survey of the Delaware River.
JOSEPH WILSON SMITH, Hazleton.
DAVID STYER, Burlington, N. J.
5. Street Cleaning Methods.
THOMAS OMAR GILLAND, Shamokin.
6. Study of an Experimental Sand Filter.
JOHN ABRAHAM ERNST, Llewellyn.
WALTER JOHNSTON, Philadelphia.
7. Review of Winding Operations at Cameron Colliery, Shamokin, Pa.
DAVID ARTHUR HATCH, Easton.
8. Review of Coal Breaker at Cameron Colliery, Shamokin, Pa.
FLOYD GRANT WILCOX, Bangor.
9. An Examination of Cyano Nitrid of Titanium.
HUGH McNAIR MILLER, Harmony, N. J.
10. The Separation of Uranium and Vanadium.
HENRY HEIL WERNER, Bangor.
11. The Double Sulfates of Aluminum and Zinc with Cesium.
RICHARD NEWELL HART, Easton.
12. The Commercial Preparation of Hydroxylamin.
CHARLES GLEN BEADENKOPF, Wilmington, Del.
13. The Occurrence of Indium in the Fume from Lead Furnaces.
JOHN EARL CARPENTER, Easton.

14. The Decomposition of Beryl.
LOUIS ANDERSON, JR., Bloomsbury, N. J.
15. The Extraction of Yttrium, Cerium, and Titanium from
Tscheffkinitz.
FRED ADAM BLAICHER, Newark, N. J.
16. The Separation of Boron and Fluorin in Tourmaline.
JAMES HENRY DELONG, Hancock.
17. The Double Sulfate of Cesium and Magnesium.
CHARLES LAZARUS BRYDEN, Easton.
18. The Application of the Oscillograph to Alternating Current
Problems.
GEORGE MILLER CASTLES, Phillipsburg, N. J.
GEORGE EDWIN POST, Phillipsburg, N. J.
19. Design and Construction of a High Potential Transformer.
ALFRED THEODORE KOEHLER, Easton.
CLINTON THIELENS HILLIARD, Easton.
20. Investigation of Various Commercial Incandescent Lamps.
CLARENCE FLOYD NAGLE, York.
CHARLES JOSEPH WALKER, Mayfield.

THE ALUMNI ASSOCIATION.

The Alumni Association is composed of Graduates of the College and such former students as left College before graduation, in good standing, as may be elected. The annual meeting is held on Tuesday preceding Commencement Day.

The Association has the privilege of choosing six members of the Board of Trustees, who hold office for six years. In June, 1904, William E. Baker, C. E., '77, of New York City, and Henry W. Cattell, M. D., '83, of Philadelphia, were chosen. In the spring of 1906 two more will be voted for.

The Executive Committee is as follows: McCluney Radcliffe, M. D., '77, Chairman, Philadelphia; Frederick R. Drake, '86, Easton; Joseph R. Shimer, '73, Phillipsburg, N. J.; James W. Fox, '88, Easton; Professor Theodore A. Elmer, '94.

It is desirable to keep up the full record, so long maintained, of the residences, occupations, literary efforts, and public services of the alumni and former students of the College.

Information is solicited in regard to these points, and also in reference to matters appropriate to the obituary record, which is annually prepared for the Alumni Association.

Each Alumnus is asked to send his personal record, carefully revised to date, to the Secretary before May 1st, 1905.

ALUMNI ASSOCIATION OF LAFAYETTE.

THOMAS FISCHER, '88, Philadelphia*President.*
 HON. HORACE HEYDT, 84, Mauch Chunk*Vice-President*
 PROF. SELDEN J. COFFIN, '58, Easton ..*Secretary and Treasurer.*

LOCAL ASSOCIATIONS.

THE LAFAYETTE ALUMNI ASSOCIATION OF NORTHEASTERN PENNSYLVANIA.

ALBERT H. WELLES, '89, Scranton*President.*
 OLIN F. HARVEY, JR., '01, Wilkesbarre*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF PHILADELPHIA AND VICINITY.

JAMES L. PATTERSON, PH. D., '77, Chestnut Hill*President.*
 CHAS. B. ADAMSON, '77, 730 Market Street*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF NEW YORK AND VICINITY.

JAMES GAYLEY, '76, 71 Broadway, New York*President.*
 LEWIS H. ALLEN, '94, 35 Nassau Street, New York ..*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF THE WEST BRANCH.

FRED H. PAYNE, '88, Williamsport*President.*
 R. FLEMING ALLEN, '90, Williamsport*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF CENTRAL PENNSYLVANIA.

REV. D. K. FREEMAN, D. D., '56, Huntingdon*President.*
 REV. A. N. HAGERTY, '81, Carlisle*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
WESTERN PENNSYLVANIA.

SIMON CAMERON LONG, '77, 43d Street, Pittsburgh ..*President.*

EDW. C. CHALFANT, '95, 602 Frick Bldg., Pittsburgh..*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
MARYLAND.

ROBERT H. SMITH, '67, 53 St. Paul Street, Baltimore..*President.*

PEARCE KINTZING, M. D., '81, Baltimore*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
CHICAGO AND VICINITY.

HUGH A. FORESMAN, '87, Chicago*President.*

L. F. GATES, '97, 203 Michigan Boulevard, Chicago ..*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
THE NORTHWEST.

REV. GEO. C. POLLOCK, D. D., '61, Litchfield, Minn. ..*President.*

HON. JAMES T. HALE, '77, Duluth, Minn.*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
WASHINGTON, D. C.

JAMES F. R. APPLEBY, M. D., '64, Georgetown*President.*

SNOWDEN ASHFORD, '88, 918 Farragut Square*Secretary.*

JUNIOR ALUMNI ASSOCIATION OF EASTON.

C. F. OLDT, '00, Easton*President.*

H. B. MOON, '99*Secretary.*

STUDENTS.

GRADUATE STUDENTS

C. A. Bergstresser, A. B., Pa. . . .	Philosophy and Philology	Lafayette, '03.
G. E. Feters, E. E., Pa.	Mining	" '02.
S. B. Gilhuly, A. M., N. J.	History and English Literature, Lafayette, '86.	
J. B. Hench, A. M., Pa.	Latin	" '83.
H. C. Mohn, A. M., Pa.	Philosophy and Pedagogy, "	'83.
J. F. L. Raschen, A. B., B. D., Pa.	Philology and Ger- manic Languages	Wallace, '98.
H. H. Reichard, A. B., Pa.	French and German, Lafayette, '01.	
A. Roberts, Ph. B., M. S., Pa.	History and Politi- cal Science	" '99.
J. W. Turrentine, M. S., N. C.,	Chemistry	Univ. of N. C. '01.
C. F. F. Garis, Ph. B., Pa.	Mathematics and German	Lafayette, '03.
J. A. Van Atta, A. B., N. J.	History	Lafayette, '04.
GRADUATES		11

SENIOR CLASS, 1905.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
John Griffith Atwood	C.	Albany, N. Y., 197 Chambers, Ph'bg.	
William Vanderveer Berg	C.	Ellenville, N. Y.	S. 4th.
Robert Patrick Blewitt†	E. M.	Mexico, Mexico , D. K. E. House.	
Ralph Johnson Boyd	C.	Hensel	27 N.
Albert Brown	E. E.	Hazleton	65 B.
Robert Brown, Jr.	C.	Stroudsburg	21 S.
Edward Irvin Campbell	C.	Easton	Cattell St.
Edward Percy Case	L.	Patchogue, N. Y.	22 S.
Mortimer David Case	L.	Patchogue, N. Y.	22 S.
Edwin Dubois Chase	Ch.	Easton	12 S.
William Hamlin Cline	E. E.	Phillipsburg, N. J.,	24 S.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Nathan Stiger Conover, Jr.	C.	Clinton, N. J.	39 S.
Paul Darwin Cook	E.M.	Merryall	161 E.
Welling Thomas Cook	C.	Merryall	161 E.
John Horn Cooper	C.	Easton	200 Burke St.
John McGill Cooper	E. E.	West Philadelphia.	122 McK.
Charles Matthew Coxe	L.	Wilkesbarre	38 S.
William Sloan Creveling	Ch.	Bloomsbury, N. J.	Home.
Henry Copp Edgar	C.	Easton	143 Bushkill.
John Theodore English†	L.	Elizabeth	147 P.
Thomas Franklin Eynon	E. E.	Scranton	69 B.
Edward Franklin Farquhar	C.	Bethlehem, 36 Centre St., B'm.	
John Frederick Farquar	E. E.	Bethlehem, 36 Center St., B'm.	
George Herman Fickes	L.	Mt. Rock	Brainerd Hall.
Robert Thomas Fox	L.	Downingtown	74 K.
Augustus Henry Fretz, Ph. B.	C. E.	Doylestown, 120 N. Third St.	
James McDowell Gilland	E. M.	Shamokin	D. K. E.
Henry B. Greensted	Ch.	Scranton	D. K. E.
Walter Bohrer Guy	L.	Washington, D. C.	131 M.
Albert Ernest Hall, A. B.,	Ch.	Indianapolis, Ind. (Knox College, Ill., '02.)	
Frederick Zeller Hartzell	C.	Lebanon	13 S.
Lester Cleveland Hawk	L.	Bloomsbury, N. J.	Home.
Horace Rogan Hoffman	C.	Olney	21 S.
Clarence Ricker Hopper†	Ch.	Newark, N. J.	127 M.
George Howorth	L.	Wilkesbarre	72 Blair.
Ross Strominger Hubley†	C. E.	Harrisburg	128 M.
Thomas D. Irwin	L.	Huntingdon	146 P.
John Lewis Jones	L.	Bangor	34 S.
Wallace Montgomery Keely,	C.	East Greenville.	130 M.
William Neeley Keith	C.	Newtown	83 N.
Christian Arthur Schultz Kemper	C.	Indianapolis, Ind	12 S.
William Huntington Kirk- patrick	C.	Easton	2 Reeder St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Robert Odillon Klotz	L.	Lansford	400 High.
Frederich Gaston Kolb	C	San Paulo, Brazil	Prof. Hardy.
Rudolf Heinrich Kudlich	E. E.	Drifton	129 M.
Albert Moore Lane	L.	Duncannon	O Br.
Dudley Eugene Latham	L.	Weatherly	142 P.
Morris Robert Henry Levin†	E. E.	Beverly, N. J.	114 McK.
Tracy Day Luccock	C.	Chicago, Ill.	131 M.
Thomas James McCabe	G. S.	Mahanoy City	400 High.
Henry McKeen, Jr.	C.	Easton	1254 Butler St.
Clyde Kennedy Miller	L.	Harmony N. J.	24 S.
John Knauss Montgomery	Ch.	Hazleton	43 S.
Oscar Louis Morgenstern	C. E.	Easton	826 Northampton.
Joseph Morrison†	Ch.	Easton	119 McK.
James Lawson Nesbitt	C.	Colora, Md.	85 N.
Harvey Bentley Parsons	L.	Media	38 S.
Walter Winfield Peacock	E. M.	Mt. Airy	131 F.
Walter Leon Peake	L.	Wellsboro	81 N.
David Wendell Phillips	C.	Scranton	94 McK.
Darwin Crawford Pomeroy	E. E.	Port Royal	76 K.
Burt Rabbitts	L.	Springfield, Ohio	75 K.
Will Wallace Ramsey†	C.	Stroudsburg	106 McK.
Clarence Oscar Rasely	C. E.	East Bangor	34 S.
Harry Reese	E. E.	Wilkesbarre	83 N.
Carmon Ross	L.	Pen Argyl	43 S.
Matthew Johnston Scammell	Ch.	Trenton, N. J.,	91 McK.
William John Schwartz	E. E.	Hazleton	129 M.
Howard Anders Seipt	C.	Worcester	25 So.
Jehiel Edward Shewell	C.	Phillipsburg, N. J.,	285 Mercer.
James Fay Shipman	C.	Sunbury	148 P.
William Grant Showman	L.	Mt. Pleasant	149 P.
George Allan Sigman	L.	West Chester	150 P.
James Sigman	L.	West Chester	117 McK.
Earle Clifford Smith	C. E.	Philadelphia	152 P.
Gustave Frederick Smith	C. E.	Honesdale	102 McK.
Thomas Jefferson Smull	C. E.	Mackeyville,	212 McCartney.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Ambrose L. Spencer, Jr.	L.	Scranton	121 McK.
Lee Prevost Stark	L.	Tunkhannock	115 McK.
Frank Wells Stewart, Jr.	C.	Easton	111 N. 4th St.
Alfred David Thomas	C.	Hazleton	23 S.
Franklin Clark Thompson ..	L.	Easton	344 McC.
Sargeant Prentiss Turnbach†	Ch.	Hazleton	149 P.
Charles Nesbitt Ulrich	L.	Catasauqua	109 McK.
George Alfred Walter	Ch.	Scranton	D. K. E.
Joseph Burton Wiley	C.	Colora, Md.	B'rd.
Philip Francis Williams	L.	Martins' Ferry, Ohio..	26 S.
John Hunt Wilson	Ch.	Easton.....	531 Cattell St.
Leo Earl Wilt	C. E. ..	Towanda	147 P.
Andrew Addison Wren†	E. M. ..	Trenton, N. J.....	77 K.
Harley Paul Yeisley	L.	Nazareth	Home.
SENIORS			91

JUNIOR CLASS, 1906.

Joseph Grubb Alexander	C. E. ...	Scranton	101 McK.
Eugene A. Anders	L.....	Norristown	25 So.
George Crowell Andrews† ..	C. E. ...	Buffalo, N. Y.	140 F.
Ernest Arthur Aston	Ch.	Wilkesbarre.....	68 B.
Chester Reese Atkinson	E. M. ..	Rising Sun, Md.	81 N.
Roy William Baker	L.	Ogden, Utah	146 P.
Raymond Grey Barr†	E. E. ..	Pittsburgh	127 M.
Herman Ario Briggs	C.	Nescopeck	31 S.
Edward Ingersoll Brown	L.	Boonton, N. J.	33 S.
John Gardner Clemson†	Ch.	Pittsburgh	136 F.
John Whitney Colliton	C. E. ..	Newfane, N. Y.	82 N.
Herbert Taite Darlington ..	E. E. ...	West Chester	D. K. E.
Russell Dunbar Dietrich	C. E. ..	Easton.....	411 High St.
Francis Shunk Downs	L.	Dover, Del.....	D. K. E.
Harry Joseph Duane†	C. E. ..	Point Pleasant, N. J.,	228 McC.
Francis Arman English.....	L.	Elizabeth, N. J.....	145 P.
Warren Harold Fee†	L.	Bombay, India ..	114 McK.
Henry A. Picking Fischer ...	C.	Easton.....	63 N. 4th St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
William Trumbower Foster†	L.	Phillipsburg, N. J., 40 Fairview Heights.	
John Henry Gaskins	L.	Danville	31 S.
Edwin Clark Gilland	C.	Shamokin	D. K. E.
Harrison Van S. Goodrich	E. E.	Brooklyn, N. Y.	121 McK.
Erwin Willard Grove	L.	Ringoos, N. J.,	36 S.
William Cummings Hall	C. E.	Cape May City, N. J.	36 S.
Henry Kinsey Hauck	Ch.	Easton, 1044 Northampton St.	
John Bernard Hawley	C. E.	Wilkesbarre	35 S.
Ruger Wilson Hay	E. M.	Easton	14th St.
Reuben Harold Hellick	C. E.	Easton	510 Northampton.
Otto Ludwig Hellmann	C.	Waterbury, Conn.	138 F.
Robert Lewis Horner	C.	Emmitsburg, Md.	65 B.
Thomas Locke Hoskins†	L.	West Chester	D. K. E.
Joshua Fletcher Hunter	C. E.	Wyncote	107 McK.
William Sloan Lare	L.	Flemington, N. J.	99 McK.
Alexander Wilson McCand- less†	L.	Pittsburgh	113 McK.
Howard Haley McIntire†	Ch.	Bridgeton, N. J.	101 McK.
Joseph Ware McIntire†	Ch.	Bridgeton, N. J.	92 McK.
Samuel Clarence McLaugh- lin†	E. E.	Easton	40 Wilkesbarre St.
Peter Bernard Monahan†	C. E.	Easton	So. E.
William Uhlinger More†	L.	Bridgeton, N. J.	89 N.
Herbert Charles Moyer	E. E.	Easton	830 Wolf St.
Frank Amandus Neff	C.	Slatington	————
Frank Milton Newbury†	E. E.	Tunkhannock	19 S.
Asher J. Odenwelder, Jr.	L.	Easton	47 S. 4th St.
Philip Roswell Phillips	C.	Scranton	94 McK.
Frank Elmer Reeder	L.	New Bloomfield	87 N.
James Fred Reid†	Ch.	West Chester	97 McK.
Solon Aaron Reinhard	C. E.	Kutztown	305 Cattell St.
John Herman Reinholdt	C. E.	Manning, Ia.	148 P.
Warren Adams Roe	L.	Newark, N. J.	D. K. E.
Frank Hannaman Ronk	Ch.	West Chester	150 P.
William James Ruch, Jr.	C. E.	Pittsburgh	86 N.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Henry DeWitt Saylor	Ch.	Easton	202 S. 6th St.
Claude Francis Schaeffer	C.	Easton	626 Ferry St.
Alexander Brady Sharpe	C.	Chambersburg	D. K. E.
Thomas Alden Shields†	C. E.	Hackettstown, N. J.	80 N.
William Weaver Shuster†	E. E.	Shamokin	D. K. E.
Francis Le Roy Smith	C. E.	Wellsboro	103 McK.
Hamilton Ross Smith	C.	Media	70 B.
Jay Mark Smith†	E. E.	Duluth, Minn.	151 P.
Frank Xavier Soete	C. E.	Honesdale	102 McK.
Frederick Eugene Stockton	C.	Pacific Grove, Cal.	33 S.
Charles Elmer Stryker	C. E.	Phillipsburg, N. J., 111 Summit Ave.	
Bascom Augustus Taylor†	C. E.	Wyalusing	68 B.
Rolland Marshall Teel	L.	Hackettstown, N. J.,	79 N.
Joseph John Thomas	C.	Hazleton	23 S.
Ralph Edward Thomas	C.	Phillipsburg, N. J., Morris and Fillmore Sts.	
Fred Walter Uhler	E. M.	St. Peter, Minn.	30 S.
Jacob Peter Uhler	E. E.	Stockertown	30 S.
Sayre Pancoast Uhler	C.	Easton	133 Cattell St.
Otis Wack	C. E.	Lansdale	19 S.
Charles Sharp Ware	L.	Bridgeton, N. J.	88 N.
Harry Bomberger White†	C. E.	Landisville, No. 2 Clinton Pl. (A. B., Franklin and Marshall, 1903.)	
Edmund Graham Wilson	C.	West Philadelphia, 110 McK.	
JUNIORS			73

SOPHOMORE CLASS, 1907.

Thomas Hoskinson Acker	C. E.	Washington, D. C.	84 N.
Oscar Wilson Ackerman	L.	Ackermansville	Home.
James Patterson Alexander	E. E.	Hollidaysburg	108 McK.
William Clark Alexander	C.	Washington, D. C.	100 McK.
Charles Robbins Anderson†	C. E.	Bloomsbury, N. J.	Home.
Frank Rockwood Bacon	C.	Bridgeton, N. J.	87 N.
Manohar Lal Badhwar, 2d†	E. E.	Ferozepore, India	71 Blair.
Mohan Lal Badhwar, 1st†	Ch.	Ferozepore, India	————
John Barberey†	C. E.	Easton	216 Pine.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Robertson Treloar Barrett	C.	Katonah, N. Y.	D. K. E.
Walter J. Berry	Ch.	Brooklyn, N. Y.	118 McK.
Arthur Clifton Boyce	L.	Tuscola, Ill.	32 S.
Martin Burns Buckley†	C. E.	Boston, Mass.	838 Wolf St.
Edward Welles Coffin†	C.	Easton	Campus.
Paul Raymond Correll	G. S.	Easton	4th St.
James Algernon Darsie†	C. E.	Pittsburgh	73 K.
Jalota Saran Dass	E. E.	Phugwara, India.	67 B.
Norman Jay Dicks	E. E.	West Chester	63 B.
Harold Edgar Diehl	C.	Easton	Lachenour Heights.
Thomas Gordon Ditchett†	L.	Bangor	78 K.
Erastus Raymond Doud†	Ch.	Hazleton	105 McK.
Wallace Douglass Durrett†	L.	Wallace, Kan.	70 B.
Walter Claude Dutot	Cl.	Stroudsburg	49 McC.
Walter French Evans	E. M.	Beaver	140 F.
Mark Dee Ewell	C. E.	Wyoming, N. Y.	27 S.
Claudius James Fingar	Cl.	Germantown, N. Y.,	512 High.
Edward Dietrich Flad	C. E.	Easton	802 Cattell St.
John Leon Freeman	C. E.	Norristown	97 McK.
Albert Allen French†	L.	Buffalo, N. Y.	137 F.
Edwin Clark Gilland	C.	Shamokin	D. K. E.
Thomas Henry Gilland†	L.	Greencastle	98 McK.
Robert Van Valzah Glover	C. E.	Mifflinburg,	118 McK.
David Walter Griffiths	L.	Wilkesbarre	48 S.
John Andrew Hamilton†	C. E.	Mercer	90 N.
Joseph Henry Hand†	C.	Wilkesbarre	107 McK.
Willis Bixler Hawk	L.	Phillipsburg, N. J.	690 Main S.
Robert Stanley Heebner	C. E.	Lansdale	231 Cattell St.
Reginald Stanley Hemingway	C.	Bloomsburg	92 McK.
Frank Hancock Hennessy	L.	Haworth, N. J.	69 B.
William Vicary Hetchie†	C. E.	Freedom	98 McK.
Paul Kingsley Holgate	L.	Scranton	115 McK.
Howard Clifford Hottel	Ch.	Trenton, N. J.	84 N.
Emerson Olds Houser	C.	Wilkesbarre	133 M.
Ziba Raymond Howell	L.	Centremoreland	46 S.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
John Nelson Hoxie	G. S.	Utica, N. Y.	231 Cattell.
Joseph Simeon Illick	Cl.	Easton	Home.
William Lewis Jackson	Ch.	Chester, N. Y.	86 N.
Albert Alonzo Johnson	C. E.	Covington	113 McK.
Frank Simon Johnson	C. E.	Easton	677 Northampton.
Walter Ellwood Kiefer	C.	Easton	720 Cooper.
Chester Tome Kimble	E. M.	Port Deposit, Md.	13 S.
Harry Dill Kinney†	C. E.	Easton	165 McK.
Archibald Spencer Kirkpatrick†	C. E.	Chatham, N. J.	128 M.
Eltinge Silkman La Bar	E. E.	Scranton	D. K. E.
Griffith Scholl Lawall†	L.	Hecktown	Home.
Rush Tilgham Lerch	E. E.	Easton	210 Burke.
Jacob Daniel Lewis	E. E.	Elmira, N. Y.	14 S.
Harry Arthur Logan	E. E.	Scranton	64 B.
Charles Deans McClary, Jr.	L.	Phillipsburg, N. J.,	77 Brainerd.
Robert Cooper McComb	E. E.	Haddonfield, N. J.	47 S.
Harold Lathrope MacAskie†	C.	Scranton	62 B.
Arthur Thomas Michler†	C.	Easton	1226 Butler.
Clyde Austin Miller	C. E.	Waterbury, Conn.	153 E.
Henry Clay Mutchler	C. E.	Easton	829 Ferry.
Thomas Osborn	C. E.	Wainscott, N. Y.	163 E.
William Carlos Perez	C.	Camden, N. J.	32 S.
Anson Samuel Pollock	E. M.	Antrim	113 McK.
Empey Arthur Robertson	G. S.	Newark, N. J.	132 M.
Charles Edward St. John	C. E.	Scranton	64 B.
Edward Holmes Schwartz†	G. S.	Pennsburg	78 K.
Floyd Raymond Shafer	L.	Tatamy	Home.
Frank Lester Sherrer†	C.	Easton	501 Paxinosa Ave.
Jed David Shilling†	C. E.	Cornwall	80 N.
Justus Mitchell Silliman	C. E.	Easton	122 Mc.
Thomas Boughton Silliman	E. M.	Easton	122 McCartney.
Bela Buck Smith, VI†	C.	Belle Vernon	165 E.
Edward Leo Smith	L.	Phillipsburg, N. J.	260 Sitgreaves.
Harold Davis Smith	C.	Phillipsburg, N. J.	91 McK.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Harvey Snook	C. E. . . .	Branchville, N. J. . . .	134 M.
Daniel Webster Snyder, Jr.	E. E. . . .	South Easton	Seitz Ave.
Frank Arndt Souders	L.	Phillipsburg, N. J.,	71 Mercer
Willard Springer, Jr.	C. E. . . .	Wilmington, Del.	D. K. E
Frank Deichman Sterner	E. E. . . .	Phillipsburg, N. J.,	154 Washington.
John William Stevens†	C. E. . . .	Utica, N. Y.	D. K. E.
Markley Stevenson	C. E. . . .	Camden, N. J.	137 F.
Christian Earle Stiver	C. E. . . .	Nazareth	116 McK.
Stanley Taylor Stone†	E. E. . . .	Phillipsburg, N. J.,	69 Bennett.
Samuel Christian Straub	Ch.	Easton	43 S. 5th.
William Rowland Tapscott	C. E. . . .	Easton	709 Ferry.
Howard Bingham Thomas	C.	Easton	21 S. 14th.
John Milton Thomas	C. E. . . .	Edwardsdale	27 S.
Harvey Claude Updegrove	C.	Easton	Monroe.
J. Harry Van Arsdale, Jr.	L.	Castile, N. Y.	151 P.
William Aloysius Ward†	E. M. . . .	Wilkesbarre	72 B.
Andrew Parker Warner†	E. E. . . .	Washington, D. C.,	McCartney.
Frederic Sager Welsh	C.	Bloomsburg	142 P.
Samuel Henry Wilde	C.	Bloomfield, N. J.	66 B.
Roger Sylvanus Williams	L.	Wilkesbarre	133 M.
Daniel Barlo Woolcock	C. E. . . .	Mahanoy City	46 S.
Frank Yocum†	C. E. . . .	Reading	66 B.
Arthur Cleveland Zuck†	L.	Easton	1300 Northampton
SOPHOMORES			101

FRESHMAN CLASS, 1908.

Charles Lupfer Albert	C.	Bloomsburg	15 S.
Donald Budd Armstrong	L.	Easton	209 Northampton.
Thomas Ellison Arnold	Ch.	Pen Argyl	23 S. 9th.
William Mandeville Austin†	C.	Haddonfield, N. J.,	110 McK.
Benjamin Mernard Ayerigg	C. E. . . .	Walden, N. Y.	77 K.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Jesse Bryght Barnitt	Ch.	Pillipsburg, N. J.	396 S. 9th.
Howard Benjamin Bartolet	C.	Lehighon	236 Monroe.
Roscoe Conklin Berlin	E. M.	Slatington	42 S.
Wesley Nathaniel Boyer	C. E.	Weissport	34 10th.
Adam Raymond Breisch	E. E.	Ringtown	116 McK.
Roie Smith Bristol	C. E.	Lima, N. Y.	50 S.
Floyd Ambrose Brotzman	L.	Easton	740 Wilkes Barre.
Arthur Judson Brown, Jr.	E. E.	East Orange, N. J.,	231 Cattell.
DeWitt Edwin Brown	E. E.	East Orange, N. J.,	231 Cattell.
Henry Lewis Buckley	C.	Easton	28 N. 3d.
John Snyder Carlile	C.	Pittsburgh	169 E.
Samuel D. Carpenter	C. E.	Carpenterville, N. J.,	Home.
Louis Charles Chandler	Ch.	Scranton,	Cor. East and Monroe.
John James Colt	C. E.	Northumberland	100 McK.
John Albert Conlin	C. E.	Duquesne	200 McC.
William Frederick Cooper	G. S.	Lakewood, N. J.	60 S.
William Warren Craig	L.	New Germantown, N. J.	60 S.
Richard John Curnow	C.	Carbondale,	236 Monroe.
Wade Hampton Davidson	C.	Junction, N. J.	Home.
William George Davis	C.	Easton	428 Berwick.
Alfred Day	Ch.	Hazleton	105 McK.
George Oliver Deshler	E. M.	Bangor	322 McC.
Eugene Knapp DeWitt	C.	Hornellsville, N. Y.	44 S.
Frank Hammond Piatt			
Dietrich	E. E.	Tunkhannock	E. Madison.
Rollo M. Curtin Ditto	C.	Mercersburg	42 S.
Harry Stephen Dollman	C.	Bloomsburg	57 S.
Elias Doremus	C. E.	Gladstone, N. J.	56 S.
Wallace Bruce Drinkhouse	L.	Easton	247 Spring Garden.
Charles Roy Ellicott	Chem	Easton	Beth. Road.
James Wilson Rhoades Engle	C.	Hazleton	73 K.
David Reese Evans	C.	Plymouth	48 S.
Maurice Cooke Fairchild	E. M.	Paterson, N. J.	99 McK.
William Josiah Fetter	C.	Landisburg	58 S.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Erle Leighton Flad	E. E.	Easton	802 Cattell.
Charles James Folk	C. E.	Phillipsburg, N. J., 62 Lewis St.	
Claude Hughes Folkenson	E. E.	Easton	29 S. 10th.
Julius Freund	E. M.	Honesdale	62 B.
Ellinwood Alden Frost	E. E.	Germantown	139 F.
Leo Alvin Gates	C.	Hornellsville, N. Y.	44 S.
Raymond Lewis Gebhardt	C. E.	Easton	25 S. 13th.
John William Giles	Ch.	Phillipsburg, N. J., 257 Washington.	
Charles Edmund Gilmore	C.	Williamsport	D. K. E.
James Gerber Gorman	G. S.	Elizabeth, N. J.	145 P.
Henry Green	Ch.	Easton Cor. Pierce and McC.	
Silas Maxwell Haight	C. E.	Elmira, N. Y.	134 M.
William Alonzo Hauck	E. E.	Easton	1044 Northampton.
Clarence Alexander Hensey	C. E.	Washington, D. C.	147 P.
Waldo Reed Heustis	E. M.	Philadelphia	60 S.
Harry Moore Hirst	E. M.	Lansdowne	122 McK.
Francis Michael Howard	E. M.	Duquesne	200 McC.
Thomas Lawrence Howard	E. M.	Duquesne	200 McC.
George Webster Hunt	C. E.	Riegelsville, N. J.	Home.
Augustus Seeley Hutchison	L.	Belvidere, N. J.	49 S.
Nathaniel Jacobs	L.	Plymouth	50 S.
Newton Alexander Johnson, Jr.	L.	Easton, Cal., 231 Clinton Terr.	
William Benjamin Jones	C.	Bangor	173 E.
George Jordan	E. E.	Johnsonburg	203 McC.
Frank Herbert Kinsey	E. M.	Hackettstown, N. J.	—
Donald Morris Kirkpatrick	C.	Easton	123 Reeder.
Paul Howard Kleinhaus	L.	Easton	R. F. D. 1
William Loyd Kline	C.	Delabole	912 Wilkes Barre.
Ira Russel Klinger	C.	Slatington	223 McC.
George Albert Koerber	E. E.	Hazleton	230 McC.
George Chamberlain Kolb	C.	Florianapolis, Brazil	169 E.
Harry George Lee	C. E.	East Orange, N. J.	344 McC.
Lasley Lee	L.	Carbondale	117 McK.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Robert Lorne Logan	L.	Oil City	Sigma Chi.
Clarence Dickinson Long	L.	Traymore	49 S.
William DeWitt Lynch	C. E.	Philadelphia	108 McC.
Donald William MacDowell			
MacCluer	C.	New Bloomfield	58 S.
Harold Orville Mackenzie	L.	Trenton, N. J.	136 F.
Harry Maue	C. E.	Hazleton	203 McC.
Charles Pomp Maxwell	C.	Easton	130 N. 3d.
William James McAvoy	C. E.	Hazleton	152 P.
George Shiffer McCaa	E. E.	Plains	85 N.
Russell Atcheson McCaahan	C. E.	Newville	Kuhns.
William John McCandless, Jr.	C.	Philadelphia	D. K. E.
Millington Barnett McComb	E. E.	Haddonfield, N. J.	47 S.
Carlton Shelhart McHenry	L.	Danville	18 S.
Andrew Parker McMeen	E. M.	Mifflintown	76 K.
Wilson Isaac Miller	C.	Easton	315 McKeen St.
William Thomas Miller	E. M.	Easton	1001 Washington.
Davis Robinson Mitchell	C.	Washington, N. J.	Home.
Arthur Clemens Morgenstern	C. E.	Easton	Home.
William Edward Moses	C.	South Gibson	57 S.
Bliss Muir	E. M.	Bangor	322 McC.
Louis W. Myers	G. S.	Closter, N. J., Fairview Ave., P'b'g.	
Mahlon Kemmerer Neale	G. S.	Upper Lehigh	138 F.
Charles Boerstler Nicholas†	Ch.	Nazareth	134 M.
Francis Paul O'Brien	C.	Wilkes Barre	35 S.
Walter Gray Peters	E. E.	Bushkill	D. K. E.
Robert Liddle Porter	E. M.	Clearfield	601 High.
Harry Lewis Raul	C.	Easton	1004 Wash ngton.
Charles Nelson Reading, Jr.	C. E.	Frenchtown, N. J., 601 High.	
William Cleveland Reese	L.	Wilkes Barre	88 N.
Chester Howe Rice	L.	Easton	25 Ferry.
Halsey Darius Rogers	G. S.	West Hampton Beach, N. Y., 232 McC.	
Lewis Glenn Royce	E. E.	Germantown	D. K. E.
Clinton Joseph Ruch	C.	Lower Saucon, 18th and Lehigh.	

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Earl Clifford Sandt	Ch.	Easton	221 McC.
Henry Karl Sangree	C.	Easton	1005 Lehi h.
James Kenneth Satchell	Ch.	Easton	42 S. 2d.
Harry August Schmidt	C. E.	Brooklyn, N. Y.	75 K.
Warren Edwin Schwartz	C.	Hancock	228 McC.
Louis William Schwindt	E. M.	Easton	316 Ferry.
Elmer Bonnell Severs	E. E.	Philadelphia	95 McK.
George Nash Shaeffer†	Ch.	Lockport, N. Y.	139 F.
Harry Dildine Shay	C. E.	Stroudsburg	106 McK.
Thomas Lockhart Shilton	C. E.	Freedom	74 K.
Aaron Boyer Shimer	C. E.	Easton, Cor. 15th and Washington.	
James Howard Smith	C.	Berwick	221 McC.
Roscoe Lee Smith	C. E.	Berwick	221 McC.
John Paul Snyder	Ch.	Easton	124 N. 10th.
Oliver Smith Styer	C. E.	Burlington, N. J.	89 N.
Arthur White Sullivan	L.	Oak Park, Ill.	601 High.
Francis William Sullivan	L.	Oak Park, Ill.	601 High.
Luther Ross Turner	C.	Westgrove	40 Cattell.
Robert Mildrum Tyack	Ch.	Reading	66 B.
Eugene Henry Uhler	C. E.	Stockertown	Home.
Frank Henry Villie	E. E.	Elizabeth, N. J.	232 McC.
Ellis Whitfield Wade	E. E.	Hackettstown, N. J.,	90 N.
Herbert Forrest Walter	C.	Easton	479 Delaware.
John Howell West	L.	Easton	26 S. 5th.
Richard Samuel Whitesell	C.	Easton	700 Walnut.
Andrew Jackson Wight	C.	Perth Amboy, N. J.,	114 Cattell.
John Forest Williams	C.	Martin's Ferry, O.	26 S.
Cyrus Hamlin Williston	Ch.	Phillipsburg, N. J.,	609 S. Main.
Henry Tissington Wootton	C. E.	Boonton, N. J.	56 S.
Samuel Duncan Wylie	C.	Shippensburg	Kuhns.
FRESHMEN			134

SUMMARY.

Courses.	Seniors.	Juniors.	Sophomores.	Freshmen.	Total.
Graduates					11
Classical.....	27	14	22	37	100
Latin Scientific	28	18	19	19	84
General Scientific	1		2	4	7
Civil Engineering	8	20	31	26	85
Electrical Engineering..	11	9	13	18	51
Mining Engineering ...	5	3	5	14	27
Chemical	11	8	7	16	42
Totals.....	91	72	99	134	407

CLASSIFICATION BY RESIDENCE.

California..... 2	Kansas 1	Pennsylvania 266
Connecticut ... 2	Maryland 5	Utah 1
Delaware 2	Massachusetts 1	Wyoming 1
District of Co-	Minnesota ... 2	Brazil 2
lumbia 5	New Jersey...74	India 4
Illinois 4	New York...26	Mexico 1
Indiana 3	North Carolina 1	
Iowa 1	Ohio 3	

ABBREVIATIONS OF ROOMS AND COURSES OF STUDY.

Brd.—Brainerd Hall.	McK.—McKeen Hall.
B.—Blair Hall	N.—Newkirk Hall.
E.—East Hall.	P.—Powell Hall.
F.—Fayerweather Hall.	S.—South College.
K.—Knox Hall	D. K. E.—Fraternity House.
M.—Martien Hall.	Sigma Chi.—Fraternity House.
McC.—McCartney St.	

C.—Classical.	E. M.—Mining Engineering.
C. E.—Civil Engineering.	G. S.—General Scientific.
Ch.—Chemical.	L.—Latin Scientific.
E. E.—Electrical Engineering.	

† Partial course; not candidates for a degree.

‡ Permitted to recite; constructively not candidates for a degree.

—Absent at time of publication of catalogue.

1904.

1905

1906.

JULY.

JANUARY.

JULY.

JANUARY.

S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	..	..	1	2	1	2	3	4	5	6	7	..	..	..	..	..	1	..	..	1	2	3	4	5	6
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	5	6	7	8	7	8	9	10	11	12	13
10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15	14	15	16	17	18	19	20
17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22	21	22	23	24	25	26	27
24	25	26	27	28	29	30	29	30	31	..	..	..	..	23	24	25	26	27	28	29	28	29	30	31	..	..	..
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..	..	..	..	..	..	..	..

AUGUST.

FEBRUARY.

AUGUST.

FEBRUARY.

..	1	2	3	4	5	6	..	..	..	1	2	3	4	..	..	1	2	3	4	5	..	..	..	..	1	2	3
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12	4	5	6	7	8	9	10
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17
21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26	18	19	20	21	22	23	24
28	29	30	31	..	..	..	26	27	28	..	..	..	..	27	28	29	30	31	..	..	25	26	27	28	..	..	..
..

SEPTEMBER.

MARCH.

SEPTEMBER.

MARCH.

..	..	..	..	1	2	3	..	..	..	1	2	3	4	..	..	..	..	1	2	3	..	..	..	..	1	2	3
4	5	6	7	8	9	10	5	6	7	8	9	10	11	3	4	5	6	7	8	9	4	5	6	7	8	9	10
11	12	13	14	15	16	17	12	13	14	15	16	17	18	10	11	12	13	14	15	16	11	12	13	14	15	16	17
18	19	20	21	22	23	24	19	20	21	22	23	24	25	17	18	19	20	21	22	23	18	19	20	21	22	23	24
25	26	27	28	29	30	..	26	27	28	29	30	31	..	24	25	26	27	28	29	30	25	26	27	28	29	30	31
..

OCTOBER.

APRIL.

OCTOBER.

APRIL.

..	..	..	..	..	1	..	..	..	..	..	..	1	..	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	3	4	5	6	7	8	2	3	4	5	6	7	8	8	9	10	11	12	13	14	8	9	10	11	12	13	14
9	10	11	12	13	14	15	9	10	11	12	13	14	15	15	16	17	18	19	20	21	15	16	17	18	19	20	21
16	17	18	19	20	21	22	16	17	18	19	20	21	22	22	23	24	25	26	27	28	22	23	24	25	26	27	28
23	24	25	26	27	28	29	23	24	25	26	27	28	29	29	30	31	..	..	..	..	29	30	..	..	..	..	..
30	31	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

NOVEMBER.

MAY.

NOVEMBER.

MAY.

..	..	1	2	3	4	5	..	1	2	3	4	5	6	..	..	1	2	3	4	5	..	..	1	2	3	4	5
6	7	8	9	10	11	12	7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12
13	14	15	16	17	18	19	14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19
20	21	22	23	24	25	26	21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26
27	28	29	30	..	..	..	28	29	30	31	..	..	..	26	27	28	29	30	..	..	27	28	29	30	31	..	..
..

DECEMBER.

JUNE.

DECEMBER.

JUNE.

..	..	..	1	2	3	..	..	..	..	..	1	2	3	..	..	..	..	1	2	3	..	..	..	..	1	2	3
4	5	6	7	8	9	10	4	5	6	7	8	9	10	3	4	5	6	7	8	9	3	4	5	6	7	8	9
11	12	13	14	15	16	17	11	12	13	14	15	16	17	10	11	12	13	14	15	16	10	11	12	13	14	15	16
18	19	20	21	22	23	24	18	19	20	21	22	23	24	17	18	19	20	21	22	23	17	18	19	20	21	22	23
25	26	27	28	29	30	31	25	26	27	28	29	30	..	24	25	26	27	28	29	30	24	25	26	27	28	29	30
..	31

3 H
5-06

CATALOGUE

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UNIVERSITY OF ILLINOIS

OF

LAFAYETTE COLLEGE

1905-1906

LAFAYETTE COLLEGE PUBLICATIONS.

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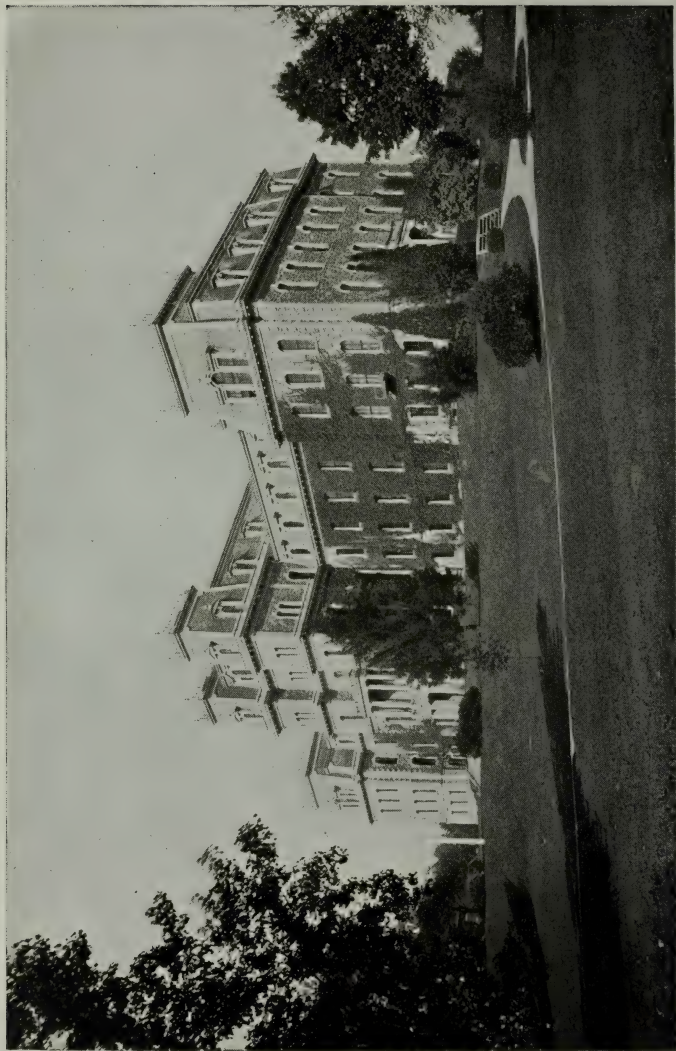
ANNUAL CATALOGUE. Published in January. This is sent to all the Graduates and former Students of the College who furnish their post-office address for the purpose, and to any other applicant on receipt of 4 cents in stamps, to cover postage.

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PARDEE HALL.

C A T A L O G U E O F
LAFAYETTE COLLEGE

INCLUDING THE COURSES OF STUDY
IN THE
CLASSICAL *and* SCIENTIFIC
DEPARTMENTS
EMBRACING THE
SCHOOLS *of* CIVIL, MINING *and* ELEC-
TRICAL ENGINEERING, *and of*
CHEMISTRY

SEVENTY-FOURTH YEAR

1905-1906

EASTON, PENNSYLVANIA

1906

VERITAS LIBERABIT.

CONTENTS.

	PAGE
Calendar	5
Lafayette College	6
Board of Trustees	7
Faculty	8
Admission	11
Courses of Instruction in all Departments	19
The Bible—Physical Culture	20
Classical Department:—	21
The Course of Study	21
Mental and Moral Philosophy	22
History and Political Science	24
Rhetoric and Elocution	28
Languages and Literature	28
Mathematics and Astronomy	35
Physics	38
Chemistry	38
Biology	39
Special Courses in Biology for Students preparing for the Study of Medicine	39
Geology	42
Synopsis of Classical Studies	44
 PARDEE SCIENTIFIC DEPARTMENT.—	
General Courses:—	
Latin Scientific Course	49
The Course of Study	49
General Scientific Course	53
The Course of Study	53
Technical Courses:—	
Courses common to all Departments	60
Mathematics, Surveying, Drawing, Logic, Rhetoric and Elocution, Mineralogy, Physics, Chemistry ..	60

	PAGE
Civil Engineering Course	69
Summer School of Engineering	76
Mining Engineering Course	80
Electrical Engineering Course	86
Chemical Course	91
General Information	99
Arrangements of Lectures and Recitations	99
Attendance	99
Examinations, Standing	99
Absences and Re-examinations	100
Graduation, Commencement, Degrees	104
Religious Instruction	106
Lectures	108
Terms and Vacations	108
Buildings	109
Libraries and Reading-Rooms	113
Scientific Collections	116
Literary and Scientific Societies	116
Expenses	118
Bequests and Devises	123
Prizes and Scholarships	124
Recent Additions	129
Degrees and Honors Conferred, 1905	130
Commencement, 1905, Prizes	131
Alumni Associations	136
Students:—	
Graduate Students	139
Undergraduates	139
Summary	152

CALENDAR.

1905.

- September 14, Thursday ...College year began.
- October 25, Wednesday..... Founders' Day.
- December 20, Wednesday.. First term ended.

1906.

- January 4, ThursdaySecond Term began.
- January 25, ThursdayDay of Prayer for Colleges.
- February 22, ThursdaySenior Prize Debate.
- March 21, WednesdaySecond Term ends.
- April 5, ThursdayThird term begins.
- May 14, MondayJunior Oratorical Contest.
- May 24-28Final Examination of the Senior Class.
- May 30, WednesdayMemorial Day, Barge Oratorical Contest.
- June 12-16,.....Examination of the lower classes.
- June 17, SundayBaccalaureate Sermon.
Sermon before the Brainerd Society.
- June 18, MondaySenior Class Day and Concert.
- June 19, TuesdayReunions of the Literary Societies.
- June 20, WednesdayCommencement Exercises.
- June 21, ThursdayExaminations for admission.

-
- September 10, Monday.....Registration for entrance.
 - September 11-12,Examinations for admission.
 - September 13, Thursday ...College year begins.
 - October 17, Wednesday.....Founders' Day.
 - November 29, Thursday.....Thanksgiving Day.
 - December 19, Wednesday ..First term ends.

1907.

- January 3, ThursdaySecond term begins.
- January 31, ThursdayDay of Prayer for Colleges.
- March 20 WednesdaySecond term ends.

LAFAYETTE COLLEGE.

Lafayette College was founded as the result of a movement inaugurated December 27, 1824 for the establishment of "an institution of learning" in which Collegiate and Engineering instruction should be given. The charter was granted March 9th, 1826. The first college exercises were held May 9th, 1832, under the presidency of Rev. George Junken, D. D., LL. D. The present beautiful site was first occupied in 1834. The Pardee Scientific Department was founded in 1866 by Ario Pardee, Esq., of Hazleton, during the presidency of Rev. Wm. C. Cattell, D. D., LL. D. The grounds are located upon a commanding height within the limits of, and overlooking, the city of Easton, Pa., at the confluence of the Lehigh and Delaware Rivers. Easton is about sixty miles from Philadelphia and seventy five miles from New York and is easily accessible from every direction by numerous lines, such as the Pennsylvania, Lehigh Valley, N. J. Central, D. L. & W., and Philadelphia and Reading Railways.

It is proposed to observe the completion of three-quarters of a century of work by a fitting celebration to be held in May, 1907. The details of this celebration are not yet fully arranged and will in some measure depend upon the response to the appeal that is now being made to the Alumni and other friends of the College for the means of enlarging the work of the College. The interest and assistance of every one who is in any way connected with the College are earnestly invited.

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MEETING OF THE TRUSTEES.

Thursday, February 8th, 1906ANNUAL BUSINESS MEETING

Tuesday, June 19th, 1906.....COMMENCEMENT WEEK.

Wednesday October, 17th, 1906.....FOUNDERS' DAY.

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(*1905-6 In Europe on leave of absence.)

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Instructor in Modern Languages.

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Assistant in Chemistry.

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Assistant in Physical Laboratory.

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Assistant in Biology.

EDWIN DUBOIS CHASE, B. S.,
Assistant in Chemistry.

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Librarian.

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CHARLES B. GREEN, E. M.,
Registrar.

ALBERT MOORE LANE, PH. B.,
Assistant in Treasurer's Office.

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JUNIOR CLASSProfessors Folwell and Mecklin.
SOPHOMORE CLASSProfessors Youngman and Hall.
FRESHMAN CLASSProfessors Hardy and Owen.

LAFAYETTE COLLEGE.

ADMISSION.

Every applicant for admission to the College is expected to report at the College offices and register immediately on his arrival. Before registering he must submit to the Registrar a satisfactory certificate of moral character from his pastor or some other person known to the College authorities, and a diploma or certificate of graduation from the school which he last attended, or, if he be not a graduate, a statement that he leaves the school with the approval of its principal and is honorably dismissed to this College, with a statement of the studies which he has pursued and the course which he desires to pursue. His application having been approved he is admitted to the examinations. Examinations are regularly held on the day following the annual commencement day in June, and the days preceding the first day of the autumn term in September, and also on the first day of the second and third terms.

REQUIREMENTS FOR ADMISSION TO THE FRESHMAN CLASS.

Candidates for admission to the Freshman Class are examined in the following books and subjects. It is strongly recommended that candidates be prepared for examination on the requirements as specified. Equivalents will be accepted only when absolutely necessary.

A. REQUIREMENTS IN ALL THE COURSES OF STUDY.

GEOGRAPHY.—Political and Physical Geography.

HISTORY.—*United States*: Johnston, McMaster, or Fiske.

General History: Fisher or Freeman. Such books as Myer's & Swinton's *General History* are not adequate.

MATHEMATICS.—*Arithmetic*: Complete, including the Metric System.

Algebra: Through Radicals and Quadratics (first thirteen chapters of Wentworth's *College Algebra*, or an equivalent).

Geometry: Plane Geometry entire: as in Wentworth or Loomis.

ENGLISH.—*Grammar*: A general examination will be given without special reference to any particular text-book to test familiarity with paradigms and syntactical analysis, and the correct use of English idioms.

Franklin's Autobiography and *Milton's Paradise Lost*, Books I and II; to be thoroughly studied as to subject-matter, form, and structure, including the language used, as to its etymology, syntax, and prosody.

Prose Composition: The writing of a short essay will be required upon a subject drawn from the foregoing text-books. No candidate will be accepted in English whose work is notably deficient in point of spelling, punctuation, idioms, or division into paragraphs.

The works recommended for study by the Association of Colleges and Preparatory Schools of the Middle States and Maryland will be accepted in place of Franklin and Milton, as follows:—

For 1906, 1907, 1908: Shakespeare's *Julius Cæsar*; Milton's *L'Allegro*, *Il Penseroso*, *Comus*, and *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton* and *Addison*; Lincoln's *Gettysburg Address*.

1909, 1910, 1911: Shakespeare's *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Speech on Conciliation with America*, or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration*; Macaulay's *Life of Johnson*, or Carlyle's *Essay on Burns*.

In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

Reading: Every candidate must have read a certain number of works of English literature. It is expected that the read-

ing shall be done under the direction of an instructor and accompanied by frequent examinations during the preparatory course, for which four years is appropriate.

The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books. In preparation of this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

The books set for this part of the examination will be those recommended by the Association of Colleges and Preparatory Schools of the Middle States and Maryland, as follows:—

For 1906, 1907, 1908: Shakespeare's *Macbeth* and *The Merchant of Venice*; *The Sir Roger de Coverley Papers* in *The Spectator*; Irving's *Life of Goldsmith*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe* and *The Lady of the Lake*; Tennyson's *The Passing of Arthur*, and one of the three Idyls, *Elaine*, or *Geraint and Enid*, or *Gareth and Lynette*; Lowell's *The Vision of Sir Launfal*; George Elliot's *Silas Marner*.

1909, 1910, 1911:

Group I (two to be selected).

Shakespeare's *As You Like It*, *Henry V*, *Julius Cæsar*, *The Merchant of Venice*, *Twelfth Night*.

Group II. (one to be selected).

Bacon's *Essays*; Bunyan's *The Pilgrim's Progress, Part I*; *The Sir Roger de Coverley Papers* in the *Spectator*; Franklin's *Autobiography*.

Group III. (one to be selected).

Chaucer's *Prologue*; Spencer's *Faerie Queene*, (selections); Pope's *The Rape of the Lock*; Goldsmith's *The Deserted Village*; Palgrave's *Golden Treasury (First Series) Books II. and III.*, with especial attention to Dryden, Collins, Gray, Cowper and Burns.

Group IV. (two to be selected).

Goldsmith's *The Vicar of Wakefield*; Scott's *Ivanhoe*; Scott's *Quentin Durward*; Hawthorne's *The House of the Seven Gables*; Thackeray's *Henry Esmond*; Mrs. Gaskell's *Cranford*; Dickens' *A Tale of Two Cities*; George Elliot's *Silas Marner*; Blackmore's *Lorna Doone*.

Group V. (two to be selected).

Irving's *Sketch Book*; Lamb's *Essays of Elia*; De Quincey's *Joan of Arc* and *The English Mail Coach*; Carlyle's *Heroes and Hero Worship*; Emerson's *Essays* (Selected); Ruskin's *Sesame and Lilies*.

Group VI. (two to be selected).

Coleridge's *The Ancient Mariner*; Scott's *The Lady of the Lake*; Byron's *Mazeppa* and *The Prisoner of Chillon*; Palgrave's *Golden Treasury* (First Series) Book IV, with especial attention to Wordsworth, Keats and Shelley; Macaulay's *Lays of Ancient Rome*; Poe's *Poems*; Lowell's *The Vision of Sir Launfal*; Arnold's *Sohrab and Rustum*; Longfellow's *The Courtship of Miles Standish*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Browning's *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Evelyn Hope*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of the French Camp*, *The Boy and the Angel*, *One Word More*, *Hervé Riel*, *Pheidippides*.

B. ADDITIONAL REQUIREMENTS FOR THE SEVERAL COURSES.

CLASSICAL COURSE.

GEOGRAPHY.—*Ancient Geography*.

HISTORY.—*Roman History* to Augustus, and *Greek History* to Alexander. The requirements are intended to be additional to the requirement in General History, and should be met by the use of books on Roman and Greek History, such as Myers', "Rome, Its Rise and Fall"; Morey's, Leighton's, or Allen's Roman History, and Morey's or Oman's Greek History.

LATIN.—*Grammar*: The Roman method of pronunciation is used.

Cæsar: Commentaries, four books, for a portion of which an equivalent in Nepos will be received.

Cicero: Orations, seven.

Virgil: Æneid, six books; *Bucolics*.

Prose Composition: Daniell's, or equivalent.

GREEK.—*Grammar*: Pronunciation according to the written accents and in accordance with the preface to Goodwin's Grammar or Hadley-Allen's, sections 11, 14, 19, 20, 21.

Xenophon: Anabasis, four books, for a portion of which an equivalent in *The Cyropaedia* will be received.

Homer: Iliad or *Odyssey*, three books; or

New Testament: Gospels, three.

Prose Composition: Collar and Daniell, or equivalent.

For admission to the—

LATIN SCIENTIFIC COURSE.

The requirements are the same as for the *Classical Course* except that for the *Greek* is substituted:—

NATURAL PHILOSOPHY.—The elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—A thorough knowledge of the Grammar and one hundred pages of simple prose. For details see below.

For admission to the—

GENERAL SCIENTIFIC COURSE.

The requirements are the same as for the *Classical Course* except that both *Latin* and *Greek* are omitted, and instead of the *Ancient Languages* are substituted:—

SOLID GEOMETRY.

ALGEBRA AND PLANE TRIGONOMETRY as stated in *Technical Courses* below.

NATURAL PHILOSOPHY.—The elementary principles; and

GERMAN.—Two years' study.

REQUIREMENTS IN GERMAN.

The First Year's Study (at least 5 hours per week throughout the year) should comprise the following: (a) Careful drill upon pronunciation. (b) Frequent drill upon and repetition from memory of easy colloquial sentences. (c) Mastery of the rudiments of grammar. The inflection of articles, nouns, adjectives and pronouns. The conjugation of weak and strong verbs. The uses of prepositions and the simpler uses of the modal auxiliaries. The elementary rules of syntax and of word order. (d) Composition. (e) Reading of 100 (12 mo.) pages of graduated text from a reader, or easy narrative prose, with constant practice upon variations of the text.

The Second Year's Work should embrace: (a) Reading of 150-200 pages from easy stories, and *one* play. (b) Drill upon the rudiments of grammar. (c) Practice upon variations of the text. (d) Composition.

The following works are suitable reading after the first year's course:

For the Year 1905-1906.—About 50 pages from Leander's *Träumereien*, or Baumbach's *Sommermärchen*, followed by Hauff's *Das Kalte Herz* or Zschokke's *Der Gerbrochene Krug*; then Storm's *Immensee*; lastly, Schiller's *Wilhelm Tell* or Lessing's *Emilia Galotti*.

For the Year 1907-1908.—Spyri's *Moni der Geissbub*, or Gerstäcker's *Germelshausen*, followed by Heyse's *L'Arrabiata*, or *Auf der Sonnenseite* (edited by Bernhardt). Then: Eichendorff's *Aus dem Leben eines Taugenichts*; lastly, Lessing's *Minna von Barnhelm*, or Schiller's *Die Jungfrau von Orleans*.

(N. B.—Too much stress cannot be laid upon the drill in grammar and upon variations of the text to enable the student to use German idiomatically and easily.)

TECHNICAL COURSES.

For admission to the schools of ENGINEERING and CHEMISTRY the additional requirements are as follows:—

SOLID GEOMETRY.

ALGEBRA.—Properties of quadratic equations; indeterminate equations; inequalities; ratio, proportion, and variation; arithmetical, geometrical, and harmonical progressions (chapters XIV, XV, XVI, XVII, and XVIII of Wentworth's College Algebra, or an equivalent).

PLANE TRIGONOMETRY.—Through the solution of right and oblique triangles (Crawley or an equivalent); candidates should bring their logarithmic tables to the examination.

GEOGRAPHY.—Physical Geography.

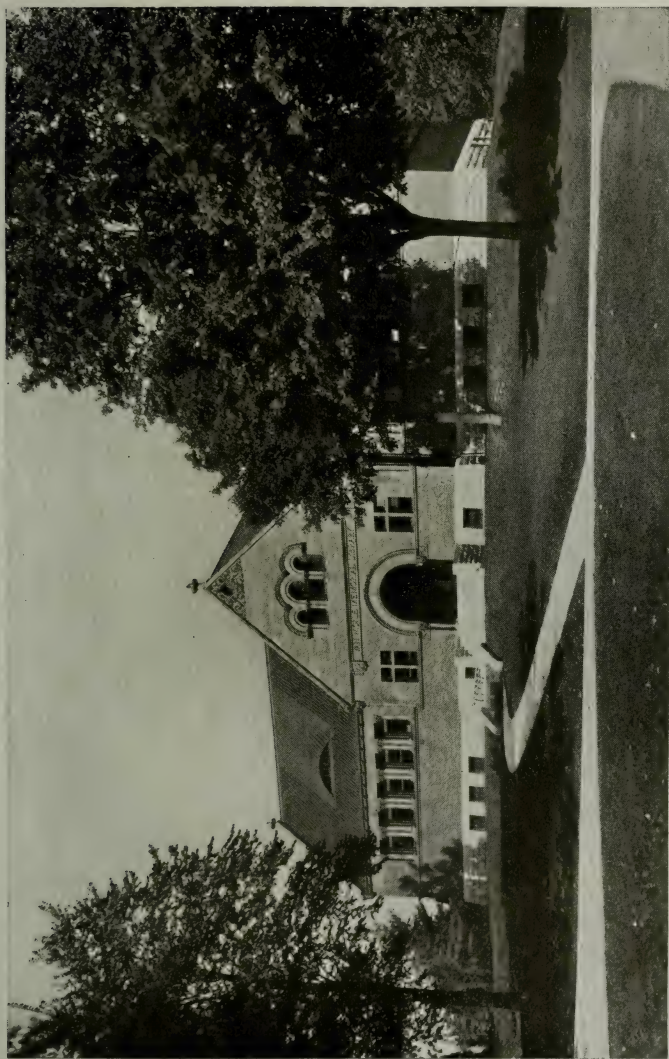
NATURAL PHILOSOPHY.—Elementary principles (Avery, Gage, or Hall & Bergen).

GERMAN.—Two years' study in GERMAN as above.

No candidate will be admitted to a technical course if conditioned in both Geometry and Trigonometry.

PARTIAL OR SPECIAL COURSES.

In addition to the courses above specified students may be admitted under exceptional circumstances to pursue



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courses of study of a special character not leading to a degree. Such students are required to undergo such preliminary examination as may be deemed necessary to ascertain their fitness to pursue the proposed course, and when admitted they are subject to the same rules and regulations and the same examinations in the studies pursued as are other undergraduates. On completing their course they will receive, on application, certificates of proficiency in such courses as they have satisfactorily completed.

ADVANCED STANDING.

Candidates for advanced standing are examined not only in the preparatory studies, but also specially in the previous studies of the class they wish to enter, or their full equivalents.

Students from another College bringing certificates of rank and honorable dismissal are permitted to recite on trial with corresponding rank in this College, until there is sufficient test of their qualifications for admission to regular standing. They will, however, be examined on whatever studies of the course may not be in the curriculum of the College from which they come, unless there are full equivalents.

No student, whether from another College or not, will be admitted to the Senior Class as a candidate for a degree after the beginning of the second term.

CONDITIONS.

Students who fail to pass in a part of the subjects in which they are examined may be admitted upon the condition that they pass a satisfactory examination on such subjects before the end of the term next after that in

which they enter. The number of such conditions with which a student is admitted to the College will be determined in each case by a vote of the Faculty.

CERTIFICATES.

Certificates of the Examination Board of the School and College Association of the Middle States and Maryland, of the Regents of the University of the State of New York and of certain approved preparatory schools are received in lieu of examination for entrance. Certificates, which will be accepted only from graduates of regularly prescribed preparatory courses, must be signed by the Principal and certify only to work done during school hours. They should be filed with the Registrar before the entrance examination in June. Blank certificates will be furnished upon application. Wherever the certificate does not cover one or more of the requirements of admission or supply a satisfactory equivalent, an examination upon such subject or subjects will be required. Such certificates will not be received after one year from the completion of the period of study for which they are given unless an additional certificate of continued study accompany them.

MATRICULATION.

No student is considered a regular member of the College until after his matriculation, which takes place thirty days after his entrance. During the interval between his admission and matriculation he is, however, in all respects subject to the laws of the College.

COURSES OF STUDY REQUIRED OF ALL DEPARTMENTS.

All of the courses of study are so arranged as to provide for at least three lectures or recitations each week-day except Wednesday and Saturday, which are half-holidays, there being no afternoon recitation. Wednesday evening is set apart for the Literary Societies, and in order to co-operate with their work the first exercise on Thursday morning is given to elocution. Every student is expected to conform to this arrangement of hours. Special students must arrange a schedule of sixteen weekly exercises. One recitation hour is regarded as the equivalent of three hours of field and laboratory work.

BIBLICAL INSTRUCTION.

The morning recitation in every class of all departments on Monday in each week is given to Biblical instruction. In the Freshman year a general view of the contents of the Bible and of each book is given, with special attention to chronology, history and geography. The class is divided into three sections, instructed by Prof. Hardy, Prof. Hall and Mr. Bergstresser. The text-books are the English Bible and Coleman's Geography of the Bible. In the Sophomore year the Acts of the Apostles is studied. The students in the Classical Course read the book in the original Greek with Prof. Youngman; those in the Latin Scientific in Latin with Prof. Owen, and the Technical divisions in French

with Mr. Gorse and Mr. Reichard. Special attention is given to the lives and labors of the Apostles and to the founding of the Christian Church. In the Junior year the Epistle to the Romans is studied. The students in the Classical Course read it in the original with Prof. Francis A. March, in the Latin Scientific with Prof. Mecklin in Latin, and in the Technical courses with Prof. Raschen in German. It is studied with reference to language and doctrine. In the Senior year a course, in which Uhlhorn's Conflict of Christianity and Heathenism is used as a text-book, is given during the first half of the year by the President, and during the remainder of the year in the History of the English Bible. In addition to these courses the Old Testament in the original Hebrew is offered as an elective study in the Senior year.

It is intended that the Bible shall be a central object of study throughout the course. It is dealt with reverently as the Word of God, and as the inspired and infallible rule which God has given to His people.

In connection with the study of the Bible, certain prizes were established by the Rev. Lyman Coleman, D. D., sometime Professor of Biblical and Physical Geography in Lafayette College. These prizes are awarded at the end of Freshman year. (See page 124.)

PHYSICAL CULTURE.

HUMAN PHYSIOLOGY.

The lectures on Health to the Freshman Class include the general principles of Physiology and Anatomy, and are thorough and practical, and illustrated by diagrams.

THE GYMNASIUM.

The College has ample ball grounds, tennis grounds, and boating facilities, a light, airy, tasteful gymnasium, thoroughly equipped with the best modern appliances, dressing-room, bath-rooms, etc., and uses a thorough system of physical culture, participated in by all the students, who are required to be in the Gymnasium at set times for class drill. The Gymnasium is also open at given hours for voluntary work. Before entering the Gymnasium each student must be examined by the Medical Director, and if it is found that the regular class exercises are not likely to be healthful for him, other exercises will be prescribed suited to his constitution and condition. All the exercises in the Gymnasium are under the supervision of the Director of Physical Training.

A fine athletic field has recently been purchased and equipped by the Alumni and Easton friends of the College. It adjoins the campus on the west, and affords excellent facilities for all out-door sports.

All athletic sports are under the careful supervision of a committee of the Faculty, of which the Medical Director of the Gymnasium is a member. *No student is permitted to take part in public contests without written permission from his parents.*

CLASSICAL DEPARTMENT.

The Classical Department consists of the historic course in the *Arts*, or *Humanities*, and retains the regular character of that course, which has so long been regarded as the foundation of a liberal education. The course has a fixed curriculum during the earlier years,

but in the latter part of the course latitude is allowed by the introduction of elective studies for the student to select such studies as he deems the best preparation for his subsequent pursuits.

This Department being the usual preparation for the learned professions, including teaching and journalism, special regard is given to the necessities of these professions, so that in addition to being the thoroughly tried means of securing a broad and liberal culture and an approved foundation of Christian scholarship, it is particularly fitted to prepare men for the learned professions. It is also recognized as a desirable preparation for other pursuits, including scientific and technical professions, wherever the circumstances of the student will permit.

The instruction embraces a systematic study of the Bible and the Evidences of Christianity throughout the course, of the Ancient and Modern Languages and their literatures, together with comparative Philology; Pure and Applied Mathematics; Physics, Chemistry, and the Natural Sciences; Rhetoric and Elocution; Logic and Metaphysics; History and Political Science; and Mental and Moral Philosophy.

PHILOSOPHY.

MENTAL AND MORAL PHILOSOPHY.

Professors March and Mecklin.

Mental Philosophy is a required study of Senior year, and is pursued under the direction of Prof. Francis A. March. The text-books used are Haven's Mental Philosophy and Baldwin's Psychology, but the students are

required to work up the topics of self-examination, by the study of the investigations of the most eminent authors, and by class discussions. Weekly written essays are also required of every student, in which he is expected to record the results of such special investigations.

An Introductory course in Psychology will be given beginning in the second term of the Junior year and will occupy two hours per week.

Ethics is required during the first term of the Senior year. The text-book used is Seth's *A Study of Ethical Principles*. The course aims to outline the psychological basis of Ethics, the nature of the moral ideas, and the metaphysical implications of morality.

Theism is a required study during second and third terms of Senior year, the text-books being Flint's *Theism* and Hibben's *Problems of Philosophy*. The course seeks to expound the grounds of theistic belief, and to investigate the final problem of metaphysics, *i. e.*, as to the nature of Ultimate Reality. The anti-theistic theories are also taken up, critical attention being given to Agnosticism, Positivism, Materialism and Pantheism.

Logic is a required study in the third term of Junior year. The text-book is Jevon's *Primer of Logic*. This is supplemented by lectures on Mill's theory of Induction, especial attention being given to scientific method.

The history of modern philosophy is offered as a Senior elective in the second and third terms. Lectures are given on the principal philosophers, from Bacon to contemporaneous thinkers. The lectures seek to exhibit the historical and philosophical connections of the various movements of modern philosophy, and to give a

critical estimate of them. No text-book is used, but the students are referred to the writings of the masters themselves, and to some of the histories of philosophy, as *Erdmann*, *Uberweg*, *Windelband*, and *Falckenberg*.

HISTORY AND POLITICAL SCIENCE.

ANCIENT HISTORY.

Professors Youngman and Owen.

In connection with the courses in Latin and Greek a very careful survey is given of Ancient History, but especially of the history of Greece and Rome. The topics immediately connected with the authors read are given particular attention, but an attempt is made to bridge the period intervening, and as the authors represent the most important periods of the history of Greece and Rome the result is that the historical accent is rightly placed. Attention is given not merely to the political history of the various periods under discussion but also to the social, literary and philosophical history of each epoch. The close relation which exists between History and Geography is recognized, and a careful study of Classical Geography forms a part of the course.

HISTORY OF EUROPE.

The President and Professor Roberts.

An elective course is afforded in the second and third terms of Senior year, which begins with the fall of the Roman Empire and traces the rise and growth of European institutions through the Middle Ages. *Emerton's Introduction to, and History of, the Middle Ages* are used as text-books, and are supplemented by lectures and library work.

During the third term a course of lectures is given to the Seniors by Professor Roberts on the Origin and Development of the Institutions of Modern Europe. These lectures begin with an inquiry into the causes of the Dark Ages, trace the influences which led to the Reformation and the Renaissance, and the influence of the new impulse upon modern thought and action. These lectures while dealing largely with the philosophical side of History are so related to the previous instruction as to rest upon known facts.

CONSTITUTIONAL HISTORY.

THE UNITED STATES.

The President and Professor Roberts.

An optional course, especially designed to prepare for the required courses in the Constitutional History of the United States, is offered in the first term of the Junior year. This course consists mainly of prescribed reading, with written reports upon the history of the American Colonies, the relations with Great Britain prior to 1775, and the causes and consequences of the Revolution.

The required work begins in the second term of the Junior year with a course dealing with the Constitution from the point of view of its historical development. Fiske's *Critical Period of American History* is used as an introduction to this course, and it is accompanied by a critical study of several important constitutional documents, such as *Magna Charta*, the *Petition of Rights*, the *Articles of Confederation*, and the *Ordinance of 1787*. Then the Constitution is taken up section by section and studied with reference to its historical de-

velopment and its subsequent interpretation and construction.

This course is followed in the third term of the Junior year by a course dealing with the constitutional history of the first thirty years under the Constitution, which undertakes to investigate the more important constitutional questions of the early years of the Republic with sufficient thoroughness and care to give the student a firm grasp of a sound method of historical study.

The study of American institutions is interrupted in the first term of Senior year by a course in general constitutional history, but is resumed in the second and third terms with a wider outlook. A more detailed study is now given to the whole subject, with Bryce's *American Commonwealth* as an introduction and general guide. It is supplemented by lectures and discussions.

These three courses are designed to give a broad and intelligent basis for American citizenship, and to prepare the way for original investigation in American history. The Ward Library is rich in material for special studies, and every effort is made to encourage the student to make independent researches.

GENERAL CONSTITUTIONAL HISTORY.

A course in general constitutional history is begun as a required course in the first term of the Senior year and continued as an elective through the second and third terms. It begins with the origin of the State, and following the plan of Woodrow Wilson's *The State*, pursues the development down to the present time. The recitations are supplemented by lectures and reading, with written reports of investigations.

POLITICAL SCIENCE.

The President and Professor Roberts.

This Department embraces courses in the elements of International Law, and in the origin and development of the State in the first term of Senior year, and in Political Economy in the second term of Senior year, and elective courses by Dr. March in Blackstone's Commentaries.

The course in International Law undertakes to do little more than to exhibit the fundamental principles which govern international affairs, and by the study of a few important cases to show the method of diplomatic procedure. It is especially intended to give the students the information needed to understand current discussions of foreign relations. In the history of the State, Prof. Woodrow Wilson's book is used, and is supplemented by lectures illustrating the analytical method.

The course in Political Economy at present consists of a rapid survey of the principles, and only limited time is given to the discussion of practical applications of economic theories. Special attention, however, is given to the questions which are vital issues of the day, such as Finance and the Tariff. The utmost care is taken to avoid the teaching of party politics under the guise of Economic Science. At the same time the teaching in this Department recognizes the importance of inculcating honest views on the money question and the right of American citizens to know what can be said for the American policy of Protection both in the abstract and in its actual workings.

All these courses are supplemented by papers, essays and debates. The Literary Societies and the public

debates do much to stimulate interest in the class work, and to give it practical application.

RHETORIC AND ELOCUTION.

The course in Rhetoric includes earlier instruction and praxis in Diction, Figures of Speech and Style, and later in Invention and in the Principles of Rhetorical Criticism; and these applied to required practice in the writing of original essays, orations, and themes.

Besides the study of text-books, weekly written essays are required, and declamations in class or before the College. *Extemporaneous Speaking* is also cultivated. In those studies, such as Mental Philosophy, in which the recitation can be had by topics, students are required to take the floor daily and present an outline of the author's thought. Extemporaneous (unwritten) debates are also had in class. The Juniors, during the third term, and the Seniors deliver unwritten addresses on subjects of their own choice. The other classes speak selected pieces. Great pains are taken to encourage the habit of simple and earnest communication of connected thought.

[THE GREEK LANGUAGE AND LITERATURE.

Professor Youngman and Mr. Reichard.

The aim of the Greek course is to be thoroughly grounded in Greek forms, idioms, and syntax—to learn the composition of words, the formation of phrases, and the construction of sentences. In the earlier part of the course there is a daily lesson in the grammar, with a test of the student's ability to apply it to the text just read. Etymologies and English derivatives are constantly called for.

The best passages of the best representative authors are translated into the best attainable English. In poetry there is a study of Homer, Sophocles, and Aristophanes; in prose, of Herodotus, for history; of Æschines and Demosthenes, for oratory. For ethical questions there is a study of Socrates in the Memorabilia and the Apology.

Attention is directed to Greek life, education, faith, religion, and habits of thought and expression, as compared with our own. The old Greek citizen and the modern American citizen are brought face to face.

Essays are also called for giving the results of the student's researches. When De Corona is read there is a special class debate on the relations of Æschines and Demosthenes with Philip. When Homer is read there are references to the Bible for comparison of faith, religion, and form of expression. There is an attempt to bring the students to an intelligent appreciation of the beauty and grace and force in Greek literature to cultivate the taste, regulate the heart, and discipline the mind.

THE LATIN LANGUAGE AND LITERATURE.

Professor Owen, Messrs. Little and Bergstresser.

It is the aim of this Department to give the students an intelligent acquaintance with the language, literature, and institutions of Rome, and qualify them for the efficient treatment of these subjects as teachers, or for the further scholarly pursuit of these and kindred studies after graduation if they should be so disposed. We try to unite accuracy in details with facility in reading within the limits of a reasonable range.

The authors read are those which present the Latin language and literature at different stages, but mainly at its best; and the method of pursuing them is based on the belief that the best way to master these great works of genius, whether in their linguistic or literary aspects, is by the minute and careful study of selected passages. Such passages are examined, therefore, clause by clause and word by word, the common matters of grammar and idiom coming first. In the earlier parts of the course there is a grammar lesson with each recitation, and the application of grammatical principles to the text in hand forms an important part of the daily drill. The elementary principles of phonology and a review of etymology and general syntax are thus treated in the Freshman year, and in the Sophomore year a more exhaustive study of moods and tenses and the formation of words. Then come questions of style, the author's habits of diction, his use of synonyms, rhetorical forms of speech, the arrangement of words, etc., and, if poetry, the significance of metrical forms.

Literary and historical allusions are looked up, also mythology, biography, geography, antiquities, everything in short which can help to clear up the author's meaning.

Aside from these incidental inquiries in connection with every text, various collateral branches of study are regularly pursued from term to term. There is the topical study of history in connection with Livy and Cicero (*De Oratore*); of antiquities in connection with Horace; of literature in connection with Latin Hymns and Tacitus; and of the history of philosophy in connection with Cicero (*De Officiis*).

A brief course in Roman archæology is also given, illustrated by an extensive collection of Roman photographs.

It is kept in mind, also, that the training in this Department should be practically helpful and valuable to those who are to speak and write the English language. With a view to cultivate the power of expression, besides the oral work of the class-room there are frequent exercises in writing, in which it is sought to faithfully render the author into the English of our literary standards.

In preparation for the course in Comparative Philology given in the Senior year by Professor March, attention is called to the history of inflection, the origin and significance of the affixes of case, number, tense, mood, voice; to the physiology of speech, the regular weakenings of sound, and a comparison of forms in the Latin, both etymological and syntactical, with the corresponding forms in the Greek and English.

The Latin is pronounced according to the Roman method. Harper's New Latin Lexicon is used; Allen & Greenough's Latin Grammar (new edition) is used as a text-book; Lane and Gildersleeve, and the larger grammars of Madvig and Roby will be found helpful for references.

THE HEBREW LANGUAGE.

Professor Mecklin.

Hebrew is an elective study in the second and third terms of the Senior year. As preparatory to more advanced work, special attention is given to the etymological principles of the language, and also to the inflex-

ions and laws of euphonic changes. To apply these principles, and to acquire a good working vocabulary, portions of Old Testament History are read, and translations made from English into Hebrew. The text-book used is Prof. Green's Elementary Hebrew Grammar.

ENGLISH LANGUAGE, COMPARATIVE PHILOLOGY.

Prof. Francis A. March, Sr., and Prof. F. A. March, Jr.

For training in speaking and writing English correctly every student is required to hand in two themes in every term of his college course. Many of them are read in class and criticised as time allows. In this work professors of all departments take part. It is desired that students in each department shall write on subjects connected with it in the words and phrases current among experts, and know the precise meaning of these words and phrases. In these matters the professors in each department are authorities.

The professors of foreign languages recognize that translation into English is training in English as well as in the foreign languages, and written translations are required partly in the interest of English study.

The study of the language in literature is different from the training just described. Its immediate purpose is the interpretation of masterpieces, the rethinking of the thoughts of master minds. It needs all the philological knowledge which can be had to clear up and illuminate the language. Such study also furnishes the materials and invites the inductions of systematic and historical philology and theories of the growth of literature. It must be largely comparative study, and in the Classical Course it is thought best to defer it until the

student has become acquainted with other languages. It is begun in the second term of Junior year with the study of Milton's "Paradise Lost." Anglo-Saxon is taken up at the same time and four recitations per week in each are prepared, the two languages being heard in immediate succession within a college hour.

In the third term Shakespeare and Anglo-Saxon are studied, and recited four times a week, as in the second term, and there are optional courses and prize examinations on Shakespeare in general, and English before Chaucer.

In the Senior year a general survey of English literature is made (two hours per week) in the second term. Four hours a week of the third term are devoted to Comparative Philology, summing up the results of former special studies and arriving at laws of language in general. For further details see page 57.

MODERN LANGUAGES.

Professor Raschen and Messrs. Reichard and Gorse.

The work of this Department is based upon the view that the aim of the American college is not to make specialists but to give a many-sided, well-rounded education; hence the different branches of the curriculum must in their very nature be co-ordinated with each other and the time allotted to each limited. It follows from this co-ordination and from the limited time allotted to each of the several branches, that in the pursuit of linguistic studies in the modern Continental languages only such a method is possible that permits in the time given to reach the result which it is proposed to achieve. This result is simply to give to the student

the beneficial mental development resulting from a thorough linguistic training; a result formerly reached by the exclusive study of the dead languages and now sought by the study both of ancient and modern languages, either in conjunction, as in the Classical and Latin Scientific Courses, or by the modern languages exclusively, as in the General Scientific and Technical Courses. And, secondly, to acquaint the student with the masterpieces of modern literature, scarcely, if at all, inferior in literary value, and certainly not less important for the proper equipment of the cultivated scholar, than the works of the great masters of Greek and Latin. The method used may be regarded as a combination of the scientific and the historical methods. The scientific method being used to lay the foundation, and the historic to broaden and develop the results of the earlier method.

We propose—

(a) To teach the present status of the grammar and vocabulary of the languages studied;

(b) To show how they acquired their present status;

(c) To introduce the study of the best writers of Germany and France in a progressive series, with special attention to contemporary literature, and, in a limited degree, to extend the same method to the literature of Spain and Italy;

(d) To trace the development and give some account of the principal writers whose works are studied.

In fine we purpose, so far as time will permit, to give careful and systematic instruction in grammar and phonetics, in the literature of the various important periods, together with the literary history of each epoch,

with special reference to the German and French languages, but as far as possible keeping in view the relations between the languages, and particularly to English. The Grammar text-books used are Joynes-Meissner German Grammar and Aldrich and Foster's Foundations of French. In connection with the grammatical studies, the reading of easy narrative prose is begun as early in the course as is practicable. A constant drill in variations of the text and composition are the means to practice and to illustrate syntactical forms.

The required study of French and German in the Classical Course is at present limited to a single term each, with four recitations a week. Elective courses in German are offered in the Senior year, while the elective courses in French are given in the second and third terms of the Senior year.

Italian or Spanish is offered as an elective in the second term of the Junior year.

A class in Conversational German meets once every week for practice in speaking German. The conversation is in German only.

While the required courses in the Modern Languages are chiefly linguistic, the elective courses are designed to promote study in the field of Literature. There will be lectures by the instructor, reading and critical study of assigned texts, discussions and papers on the work and author studied.

MATHEMATICS.

Professor Hardy and Messrs. Little and Bergstresser.

The course in Mathematics embraces during the Freshman year the continuation of the study of Algebra,

begun in the preparatory school (including a brief review of simple equations), to which the entire work of the first term in this Department (four hours per week) is given. In the first term Freshman year all have Algebra four hours per week. In the second term Division A has Algebra and Geometry and Trigonometry each three hours per week. Division B has Algebra two hours per week and Geometry four hours per week in the second and third terms of the Freshman year.

In the Sophomore year Trigonometry and Mensuration occupy four hours per week during the first term. In the second term five recitations per week are given to the study of Analytical Geometry. The course is begun by the drawing of a large number of curves from their equations, so that from the first the student may see that the properties of a curve may be studied by means of its equations. After that the demonstrations of the proposition usually given in the Analytical Geometries are constructed with the same strictness of reasoning, and every step in them is proved with the same logical rigor as in Euclid. A clear and correct figure showing every point and line mentioned in the demonstration is always required. It is hoped that at the conclusion of his demonstration the student shall see clearly and at once the meaning of every symbol in the equation obtained, and shall be perfectly sure of the truth of his conclusion. Training in clearness and accuracy of thinking, and in the effective expression of thought, is regarded as of the highest importance. Calculus is taken up in the third term of the Junior year, two hours per week being devoted to it that term, and two in the first term of the Senior year. The discussions of Differential and Inte-

gral Calculus are made as far as possible to illustrate the essential oneness of the two branches of the Calculus. A further course in higher branches of Mathematics is offered as an elective in the second and third terms of the Senior year.

ASTRONOMY.

Professor Hardy.

The study of astronomy is begun in the first term of the Senior year and continued through the second. It is illustrated by practical work in the Observatory with the various astronomical instruments. The course includes a thorough study of the points and lines of the Celestial Sphere; a short discussion of the construction and use of the principal astronomical instruments; of Parallax and Refraction, and of the methods of determining Latitude, Time, and Longitude. Then follows a careful study of the earth as a member of the Solar System; of the Moon; of the Sun, including the Spectroscopy of the Sun; of Eclipses; of the general laws and construction of the Solar System, and of the Planets and their Satellites. This is followed by a brief discussion of the methods of determining the Sun's Horizontal Parallax and a fuller discussion of Comets, Meteors, and the fixed Stars, including the Spectroscopy of these bodies. The course ends with a study of the general structure of the Stellar Universe and a discussion of the Cosmogony and the Nebular Hypothesis.

PHYSICS.

Professor Moore and Mr. Post.

The studies in this Department in all the courses occupy four recitations or lectures a week for a year, beginning with the third term Sophomore year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments and laboratory work for technical students. In other subjects the study of the text-book is accompanied with illustrative lectures, aided by a valuable collection of apparatus and charts, which is continually enlarged and improved.

The course begins with an experimental demonstration of the fundamental principles of Statics and Kinetics in connection with a mathematical treatment of the subjects. This is followed by very full lectures on Heat, Magnetism, Electricity, Sound, and Light. Daily written and oral examinations impress the laws and facts thus presented upon the student.

For the advanced studies of the technical courses in Analytical Mechanics and allied topics of Mechanical and Electrical Engineering, see pages 72 and 86.

CHEMISTRY.

Professor Hart and Messrs. DeLong and Chase.

The study in this Department begins with a course of lectures on General Chemistry, combined with the study of a text-book. In connection with these lectures each student is required to work in the Laboratory under the direction of the Professor. In the Senior year an elec-

tive course in Qualitative Analysis is also offered. Students in full standing who receive permission from the Faculty may also work in the Laboratory outside of recitation hours, if they so desire.

BIOLOGY.

Professor Davison and Mr. Bailey.

The work in Botany is entirely elective. A general course in practical, morphological, and physiological Botany is open to the Seniors in the Fall term.

The College Herbarium is extensive and particularly rich in Pennsylvania species, ranking in this respect among the best in the country. In its creation Dr. Porter was actively engaged for nearly half a century. It has been gradually built up by personal collection, gift, exchange, and purchase, and well represents the growth of this branch of the science in the United States during this period of time. It contains the type-specimens of many species described by him.

With the exception of Sanitary Biology required in the third term for the Junior Civil Engineers the courses in Biology are elective only, and consist of work throughout the Junior and Senior years. They are open for election to Classical, Latin Scientific, and General Scientific students. In order to meet the double purpose of a professional preparation and general culture, the courses are so arranged as to provide in each the special knowledge required without sacrificing the ends of general culture and discipline, which is sought in all the undergraduate courses. Those not wishing to take the complete course may begin their work the first

or third term of the Junior year. No one will be permitted to enter the course later than the first term of the Senior year, and those who begin the study in that year should pursue it throughout the year, as the course is continuous.

The work in this Department begins with the Junior and extends through the Senior year, one term being devoted to each of the following branches: Mammalian Anatomy, Histology, General Biology, Vertebrate Zoology, Human Anatomy and Physiology, and Embryology.

The course in Mammalian Anatomy includes the preparation and preservation of animals, both for museums and dissecting purposes, together with a comparative study of the various systems in the cat, dog, rabbit, and opossum, after the student has familiarized himself with the structure and relative location of the organs in a typical mammal. Dissections, demonstrations, drawings, recitations, and reports by the students serve not only as a valuable discipline in the use of language, manipulation, and accurate observation, but supply the investigator with a store of practical facts in logical order. Additional lectures and demonstrations are also given by the instructor.

The course in Histology is eminently practical, treating of the hardening, preserving, embedding, section cutting, and straining of all the important tissues, and giving a thorough knowledge of the use of the microscope. Each student is required to mount for permanent preservation at least fifty specimens, and to deposit with the Laboratory a sample of charts prepared from

specimens thus mounted which he has used in his demonstrations and reports before the class.

General Biology is arranged to give a concise knowledge of the lower forms of animal and plant life, including a brief survey of Bacteriology. Special attention is given to the life-history of the invertebrates and their economic relation to the human race.

Vertebrate Zoology gives an opportunity for the comparative study of the various systems and organs in the vertebrata. Amphioxus, petromyzon, carp, frog, turtle, pigeon, cat, and dog are among the forms dissected and otherwise studied. The manner of development of the animal kingdom is brought prominently before the student by specially prepared charts and diagrams, and the factors and methods of evolution are given due attention.

Human Anatomy and Physiology are taught by experiments, drawings, reports, and recitations by the students, and lectures, demonstrations, and quizzes by the instructor. Actual dissection of the cadaver is not required. Instead of this, the study of the various organs of the human body preserved in alcohol, and the study of a life-size French manikin, serve to give the investigator an adequate knowledge of the structure and functions of the human organs.

In Embryology the development of the chick embryo at different stages is carefully studied. The eggs of aves, amphibia, and pisces are incubated in the laboratory, and investigated during their development. The study of Embryology is a fitting conclusion to the Biological series, as here one may see the entire history of the animal kingdom enacted in a single species.

A large laboratory and four small ones, well equipped with microscopes, microtomes, water baths, Koch's vegetation incubator, re-agents, numerous skeletons, etc., afford ample facilities for the above work.

Those taking the above-described course in Biology, together with the required number of hours in Chemistry, Physics, and Botany, will be given certificates admitting them to the second year's work in most of the medical schools of this country.

GEOLOGY AND MINERALOGY.

Professor Peck.

This course, which is also open to students of the General and Latin Scientific courses, begins in the third term Junior year with a brief discussion of rock-forming minerals and the way they unite to form igneous, metamorphic, and sedimentary rocks. This is a necessary preparation for the course in Geology, which continues as an elective throughout the Senior year. In this Senior elective course Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed, and the first term of the year is devoted to Dynamical, Structural, and Physiographical Geology. Class-room work is supplemented by excursions into the region about Easton, which abounds in a variety of features of great geological interest.

The second term of the year is devoted to Historical Geology, during which special attention is paid to the succession of life forms. The work of the class-room is supplemented by a careful study of an excellent working collection of fossils now in the possession of the Department.

The third term is occupied in practical field work in Geology, in mapping, and in constructing geologic sections of the region about Easton.

Among the teaching appliances of the Department may be mentioned an excellent collection of igneous rocks, consisting of about eight hundred specimens, many of which have their corresponding thin sections for microscopic study. These are added to from time to time as opportunity affords. They are all accurately labeled. Also an equally good collection of about twelve hundred specimens, illustrating Stratigraphical Geology, all well labeled; numerous physiographical and geological maps; sixty-four large palæontological charts, made under the direction of Prof. V. Zittle, of the University of Munich; an excellent stereopticon, with about seven hundred slides, illustrating a great variety of geological and palæontological subjects; and numerous wooden, glass, and plaster models for class-room work in Geology and Mineralogy.

CLASSICAL COURSE.

FRESHMAN YEAR.

	HOURS
MATHEMATICS. <i>First Term.</i> —Algebra. A brief review of the requirements of admission and a continuation of the study of equations.....	4
<i>Second Term.</i> —Algebra, and Geometry, Plane and Solid	6
<i>Third Term.</i> —Algebra completed, Solid Geometry completed, Division B. Geometry, Trigonometry, Division A	6
LATIN. <i>First Term.</i> —Livy: Books I and XXI; Latin Prose; Early Roman History, and the second Punic war	4
<i>Second Term.</i> —Horace: Odes; Prosody; Latin Prose...	4
<i>Third Term.</i> —Horace: Satires and Epistles; Roman Antiquities. Throughout the year a review of Syntax and Etymology; exercises in written translation....	4
GREEK. <i>First Term.</i> —Xenophon: Memorabilia; prose composition; classical geography	6
<i>Second Term.</i> —Herodotus: select passages; old Greek life	4
<i>Third Term.</i> —Homer: The Iliad; select passages from the first six books; Greek literature.....	4
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible throughout the year.....	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations, Themes, and Forensics are required.	

NOTE.—The authors read are changed from time to time, and the passages selected for study vary frequently. Those named above are now used and give a fair idea of the work done.

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B.....	4
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ASTRONOMICAL OBSERVATORY.

HOURS.

<i>Second Term.</i> —Plane Analytical Geometry, Division B.	
Plane and Solid Analytical Geometry, Division A. . . .	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
LATIN. <i>First Term.</i> —Cicero: De Oratore; the subjunctive mood; Roman History from the Gracchi to the Empire	4
<i>Second Term.</i> —Christian Latin: March's Latin Hymns; derivation and formation of words; early Roman literature	4
<i>Third Term.</i> —Cicero: De Officiis; Topics in the History of Philosophy	2
GREEK. <i>First Term.</i> —Homer: The Iliad; select passages from Books XVIII to XXIV; Homer and the Bible compared	4
<i>Second Term.</i> —Plato: The Apology and Crito; select passages	4
<i>Third Term.</i> —Æschines against Ctesiphon	4
Throughout the year careful attention is given to the social and political history of the period suggested by the text.	
ENGLISH LANGUAGE. <i>First Term.</i> —Trench: The Study of Words	2
<i>Second Term.</i> —Rhetoric	1
FRENCH. <i>Third Term.</i> —Grammar, Composition, and Translation of easy select passages from modern writers	4
THE BIBLE.—The Greek Testament: The Book of Acts. . .	1
<i>Throughout the year</i> —Declamations, Themes, and Forensics.	

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
LATIN.—Tacitus: Agricola, and selections from the Annals. Roman Literature of the Silver Age	2
GREEK.—Demosthenes: On the Crown; History	4
GERMAN.—Grammar, Composition, and Translation from	

	HOURS
modern authors	4
THE BIBLE.—The Epistle to the Romans in Greek.....	1
BIOLOGY.—Elective with Latin (in connection with the Histology of the next term): Mammalian Anatomy	2

Second Term.

PHYSICS.—Acoustics, Optics	3
PSYCHOLOGY.—Introductory course	2
ENGLISH.—Milton	} 4
ANGLO-SAXON.—Grammar and Reader (March).....	
HISTORY.—Constitutional History of the United States...	2
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
THE BIBLE.—The Epistle to the Romans in Greek.....	1
GREEK.—A play of Æschylus or Sophocles.....	} 2
or BIOLOGY.—Histology: Elective with Greek.....	
ROMAN LANGUAGES.—Spanish or Italian, optional.....	2

Third Term.

LATIN.—Roman Satire: Juvenal; Archæology, Roman remains	2
ENGLISH.—Shakespeare.....	} 4
ANGLO-SAXON	
CHEMISTRY.—Lectures, Text-book, and Laboratory work	2
PSYCHOLOGY.—Introductory course	2
LOGIC.—Jevons	2
THE BIBLE.—The Epistle to the Romans in Greek.....	1
Declamations, Themes, and Debates throughout the year.	
ELECTIVES.—Each student to choose four periods from the following:—	
MATHEMATICS.—Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History of the United States...	2
BIOLOGY.—General Biology	4

SENIOR YEAR.

First Term.

ASTRONOMY.	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4

	HOURS.
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History.....	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn)..	1

ELECTIVES.

Four hours to be chosen from the following:—

INTERNATIONAL LAW.—Lawrence	2
LATIN.—Lucretius	2
MATHEMATICS.—The Calculus	2
GEOLOGY	2
BIOLOGY.—Vertebrate Zoology	4
BOTANY	2
GERMAN	2

Second Term.

MENTAL PHILOSOPHY.—Continued	2
THEISM.—Flint	2
POLITICAL ECONOMY.—General Principles (Walker).....	2
ENGLISH LITERATURE	2
CHURCH HISTORY.—Conflict with Heathenism (Uhlhorn).	1

ELECTIVES.—(Each two hours.)

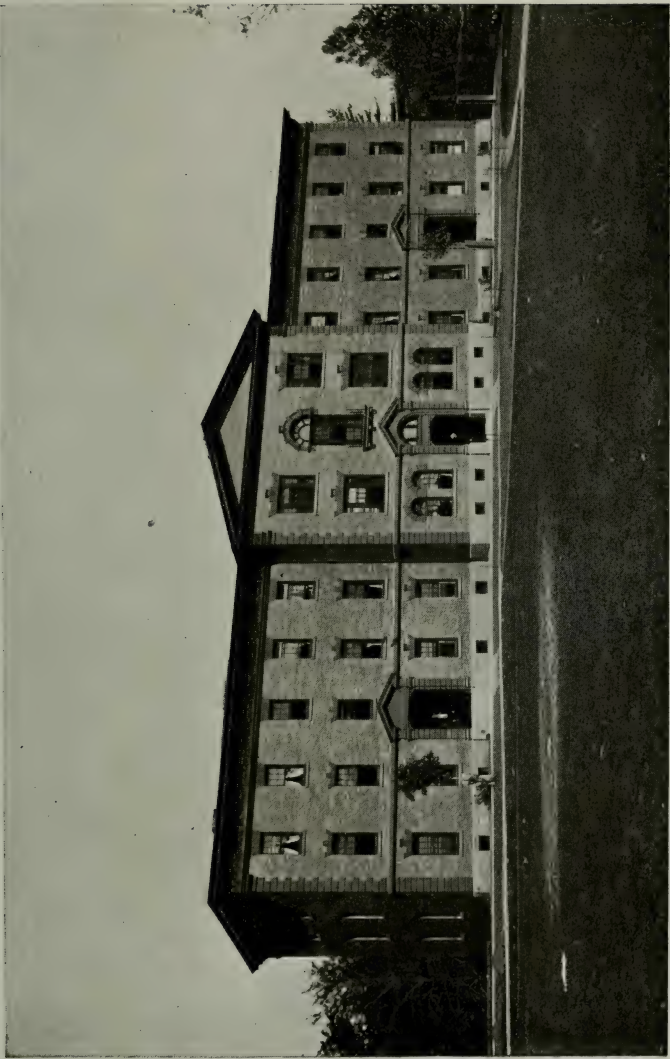
Six hours to be chosen from the following:—

BLACKSTONE.—Commentaries on the Law of England.		
HEBREW.—Grammar and reading from Genesis.....	4	
GREEK.	{	The classes are allowed to select the authors read, so that they vary from year to year. Advanced instruction is grammar and idiom is given in all classes.
FRENCH.		
GERMAN.		
LATIN.		
ASTRONOMY.		
CHEMISTRY.—Advanced instruction in Laboratory.		
GEOLOGY.—Palæontology.		
CONSTITUTIONAL HISTORY.—United States (Bryce).		
HISTORY OF PHILOSOPHY.—Greek and Modern.		
MATHEMATICS.—Solid Analytical Geometry or Theory of Functions.		

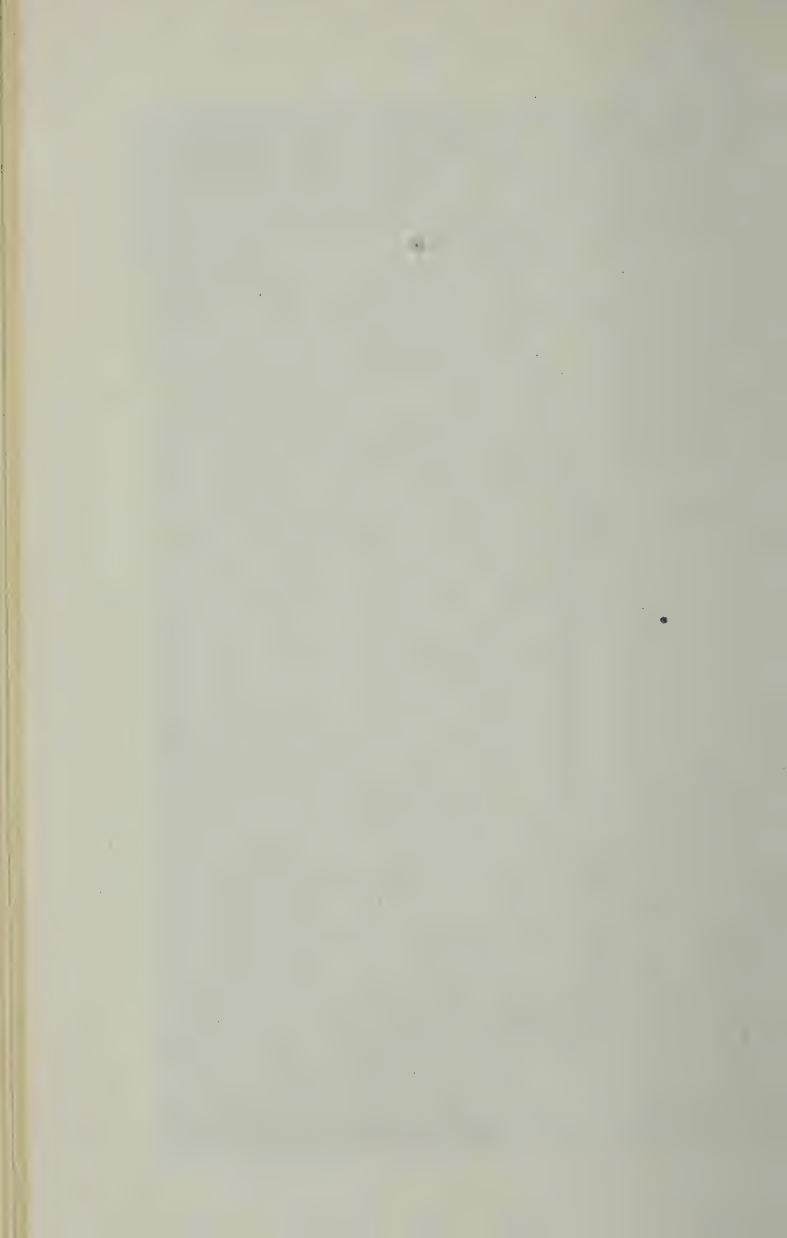
	HOURS
HUMAN ANATOMY and PHYSIOLOGY.—Elective four periods and substituted two periods for English Literature . . .	6
PEDAGOGICS	2

Third Term.

COMPARATIVE PHILOLOGY	4
HISTORY.—Lectures on the Development of European In- stitutions	2
PHILOSOPHY.—Problems of Philosophy (Hibben)	2
BIBLE	1
ELECTIVES.—Same as Second Term; except	
MATHEMATICS.—Solid Analytical Geometry or Elliptic In- tegrals	2
BIOLOGY.—Embryology	6
<i>Throughout the year—Themes and Extemporaneous Speaking.</i>	



MARTIEN, FAYERWEATHER AND POWELL HALLS.



PARDEE SCIENTIFIC DEPARTMENT.

This Department was organized in 1866, in accordance with the conditions of a gift from Ario Pardee, Esq., of Hazleton, Pa. The original organization has been from time to time greatly enlarged and extended, largely through the continued munificence of the founder. There are at present two General Courses of study, the Latin Scientific and the General Scientific, and four Technical Courses.

LATIN SCIENTIFIC COURSE.

This course, which leads to the Degree of Bachelor of Philosophy, was designed to meet the wishes of those who desire to pursue a course of liberal study, but will not study Greek. It therefore is the same as the Classical Course except that the time devoted to the study of Greek in that course is given to the pursuit of studies mainly of a scientific character, but throughout the general course of this school great importance is paid to the study of the English language under the special direction of Professor Francis A. March. In the Freshman year the substitutes for Greek are German and English Language and Composition, while in the Sophomore they are various English studies. In the third term, Sophomore year, French is begun and continued through the first and second term of the Junior year. The method of instruction in each Department is fully dealt with under the course of study in the General Scientific Course. The synopsis which follows will sufficiently explain any other peculiarities of the course.

SYNOPSIS.

LATIN SCIENTIFIC COURSE.

FRESHMAN YEAR.

	HOURS
MATHEMATICS. <i>First Term.</i> —Algebra	4
<i>Second Term.</i> —Algebra and Geometry, Plane and Solid	6
<i>Third Term.</i> —Algebra and Geometry, completed, Division B. Geometry and Trigonometry, Division A.	6
LATIN. <i>First Term.</i> —Livy: Books I and XXI. Latin Prose. Roman History	4
<i>Second Term.</i> —Horace: Odes; Latin Prose.	4
<i>Third Term.</i> —Horace: Satires and Epistles. Roman Antiquities	4
Throughout the year a review of Syntax and Etymology and Exercises in Composition.	
ENGLISH	2
GERMAN.—Grammar and selections from contemporary prose: <i>First Term</i> , 4 hours; <i>Second and Third Terms</i> , 2 hours.	
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible, throughout the year.	1
HYGIENE. <i>First Term.</i> —Lectures upon the Essentials of Health	1
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Division B.	4
<i>Second Term.</i> —Plane Analytical Geometry, Division B. Plane and Solid Analytical Geometry, Division A.	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
LATIN. <i>First Term</i> —Cicero: De Oratore.	4
<i>Second Term.</i> —Christian Latin. March's Latin Hymns. Roman History and Literature.	4
Cicero: De Senectute	2
<i>Third Term.</i> —Cicero: De Officiis; Topics in the History of Philosophy	2

	HOURS.
ENGLISH LANGUAGE. <i>First Term.</i> —Trench: The Study of Words (2); and Bunyan's Pilgrim's Progress (4)	6
<i>Second Term.</i> —Rhetoric (1). Spencer: The Faerie Queene (2)	3
<i>Third Term.</i> —Chaucer: The Canterbury Tales	4
FRENCH. <i>Third Term.</i> —Grammar, composition, and translation	4
THE BIBLE.—The Book of Acts. (One hour per week throughout the year)	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity	4
LATIN.—Tacitus: Agricola and selections from the Annals. Roman Literature of the Silver Age	2
ENGLISH.—Bacon	4
FRENCH.—Grammar and Translation	4
THE BIBLE.—The Epistle to the Romans in German	1
BIOLOGY.—Elective, as in Classical Course: Mammalian Anatomy	2

Second Term.

PHYSICS.—Optics, Acoustics	3
ENGLISH.—Milton	} 4
ANGLO-SAXON.—Grammar and Reader (March)	
PSYCHOLOGY.—Introductory course	2
HISTORY.—Constitutional History of the United States	2
THE BIBLE.—The Epistle to the Romans in German	1
CHEMISTRY.—Lectures, Text-Book and Laboratory Work	2

BIOLOGY.—Elective with French: Histology	2
FRENCH.—(Elective)	2
ROMANCE LANGUAGES.—Spanish or Italian (optional)	2

Third Term.

LATIN.—Roman Satire: Juvenal and Persius	2
ENGLISH.—Shakespeare	} 4
ANGLO-SAXON	

	HOURS.
CHEMISTRY.—Lectures, Text Book and Laboratory Work	2
PSYCHOLOGY.—Introductory course	2
LOGIC.—Jevons	2
THE BIBLE.—The Epistle to the Romans in German	1
ELECTIVES.—Four hours to be chosen from the following:—	
MATHEMATICS.—The Calculus	4
GEOLOGY	2
HISTORY.—Constitutional History	2
BIOLOGY.—General Biology	4
<i>Throughout the year—Declamations, Themes, and Debates.</i>	

SENIOR YEAR.

First Term.

ASTRONOMY.—Practical Astronomy, with work in Observatory	2
MENTAL PHILOSOPHY.—Haven, Baldwin	4
MORAL PHILOSOPHY.—Seth	2
HISTORY.—General Constitutional History	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1

ELECTIVES.

LATIN.—Lucretius	2
MATHEMATICS.—The Calculus	2
POLITICAL SCIENCE.—International Law	2
BOTANY	2
GEOLOGY	2
BIOLOGY.—Vertebrate Zoology	4
GERMAN	2

Second Term.

MENTAL PHILOSOPHY.—Haven, Baldwin	4
THEISM.—Flint	2
ENGLISH LITERATURE	2
POLITICAL ECONOMY: The General Principles (Walker)	2
BIBLE.—Conflict with Heathenism (Uhlhorn)	1

HOURS.

Six hours of the following *electives* are to be chosen:—

BLACKSTONE.—Commentaries on the Law of England. . . .	2
HEBREW.—Grammar and Reading from Genesis.	4
GERMAN	2
FRENCH	2
ASTRONOMY	2
CHEMISTRY.—Advanced instruction in Laboratory work. .	2
GEOLOGY.—Palæontology	2
CONSTITUTIONAL HISTORY.—United States (Bryce).	2
HISTORY OF PHILOSOPHY.—Greek and Modern.	2
MATHEMATICS.—Solid Analytical Geometry or Theory of Functions	2
BIOLOGY.—Human Anatomy and Physiology.	6

Third Term.

COMPARATIVE PHILOLOGY.	4
HISTORY.—The Development of European Institutions. . .	2
PHILOSOPHY.—Problems of Philosophy (Hibben).	2
BIBLE	1
ELECTIVES, as above, except Embryology for Human Anatomy and Physiology.	6
<i>Throughout the year</i> —Themes, Forensics, and Debates.	

GENERAL SCIENTIFIC COURSE.

This course leads to the degree of Bachelor of Science, and consists of a curriculum in which Mathematics, the Modern Languages and their Literatures, especially English, and the Natural and Physical Sciences receive principal attention. It includes, however, the more general studies of the Arts Course, such as History, Logic and Rhetoric, Mental and Moral Philosophy.

The Mathematics of this course is the same as the Mathematics of the Technical Courses. French and German are begun in the Freshman year and are pur-

sued with great breadth and particularity. The student's attention is directed to the study of the literatures of these languages in the endeavor to supply, so far as may be possible, the liberal culture ordinarily to be obtained only by the classical studies, but particular stress is laid upon the very thorough-going course in English, a description of which follows:—

ENGLISH LANGUAGE AND LITERATURE.

Professors Francis A. March and F. A. March, Jr.

In the Freshman Class there is, first of all, a thorough drill in Analysis, Parsing, and the Syntax of sentences. This is the basis of the future work, and a mastery of the general principles of Syntax, and skill in the solution of familiar idioms is brought constantly into requisition. Then before the more advanced work in Philology is undertaken, other languages are studied. French and German (as in the Classical Course Latin and Greek) come in as parts of the organized scheme of linguistic study, and are so pursued as to become a means of special culture in English.

Sophomores take up in the first term Trench on the Study of Words and Bunyan's Pilgrim's Progress; in connection with which English Grammar is studied. The Grammar subjects for this term are Syntax, Grammatical Equivalents, Rhetorical Forms, and Historical Elements. On each, daily recitations are heard, and the lessons learned are constantly illustrated by the text under review. The whole story of Pilgrim's Progress is read, the allegorical meaning called for part by part, and salient doctrinal points noticed.

The staple of daily drill, however, is found in connection with the minute and careful treatment of selected passages. These are studied clause by clause and word by word. The Syntax is first made clear, then words are taken up; synonyms and phrases grammatically equivalent are brought into comparison, and the student is taught to feel an intelligent preference for one or another form of expression, as it may promote perspicuity, liveliness, or other traits of a clear and vigorous style. In the treatment of single words, also, the German and French are called for, and as far as practicable in the Scientific Course the Latin. The laws of change, the derivation, the root, the radical idea, kindred words, the primary meaning, changes in the meaning with the connection of thought, together with such other lines of inquiry as are suggested by Trench, as indications of history, character, moral suggestions, and the like; poetical forms of frequent occurrence are also specially noted, and the collection of words discussed, both with respect to syntax and the rythmical cadences of speech.

In connection with this daily drill, the life and times of Bunyan are discussed in writing by each member of the class, and his diction compared with that of other standard works, and especially with the Bible. In this part of the work students are directed by questions and references, but are expected to look up information everywhere.

This system of daily drill on the best passages, reports on other readings, and weekly essays on topics growing out of the discussions of the life and times of the author, is found to lead the student on by sure and rapid steps to an intelligent appreciation of the author's works, his

place in literature, and on the whole to the best mastery of his genius.

The same general plan is pursued progressively through the course, with changes, from term to term, in the topics embraced in the drill.

The Sophomores (second term) read Spencer's *Faerie Queene*, with the same concentration upon representative passages, the special drill topics being derivation, romance of chivalry, and Spenserian stanza. In the third term Chaucer (*Canterbury Tales*) is the basis of work. Several of the tales are read and discussed, but the famous Prologue is the special subject of study and philological drill. All the results of previous works are kept constantly in review. This is an emphatic feature of the method. "A line of questions once begun is always kept up." The special drill topics this term are Phonetic Elements, Orthographic Elements, a review of Historical Elements, and Criticism of Uncertain Text.

The Juniors (first term) take for philological study selected essays of Bacon; they prepare reports and criticisms of others of his works, and of his character, life, and times, in weekly written papers. During the second term they study Anglo-Saxon. They also read Milton's *Paradise Lost*. The Classical, Latin Scientific, and General Scientific Juniors here recite together (as they do in all subsequent Anglo-Saxon and English studies of the course). The philological study is mainly directed to the deduction of English words and forms from Anglo-Saxon. The paradigms and the text read are examined word by word in this view. Special objective points are Poetical Forms and Epic Art. In the third



JENKS BIOLOGICAL LABORATORY.



APPROACH TO LAFAYETTE COLLEGE.

term Anglo-Saxon is continued, and Shakespeare's play of Julius Cæsar is read. The philological study is used mainly to clear up, enrich, and impress the thoughts of Shakespeare. The characters and the structure of the play is studied. Weekly written papers are required from each student upon selected topics connected with Shakespeare's life and times, his genius, his dramatic art and the like.

In the Senior year one term is given to a rapid and general survey of English literature by means of a compendium and class discussions, and conversations, and a representative work of a representative author, selected by the professor, is studied with a view to more extended researches in philology and criticism, and to one elaborate essay by each member of the class, to be handed in at the close of the term. What is known as the F. A. March Prize is awarded on the basis of this term's work. During the third term, Senior year, Professors Whitney's Lectures on Language are studied. The work of the entire course in Comparative Philology is reviewed and co-ordinated, and advanced work pursued by means of lectures and class discussions.

HISTORY.

The President and Professor Roberts.

In this course, a course in the Introduction to the Middle Ages Emerton and the History of the Middle Ages, with special reference to the development of European institutions, is given in the third term of Sophomore year.

All the courses in History and Political Science de-

scribed under the Classical Course are also open to students of this Department.

SYNOPSIS.

GENERAL SCIENTIFIC COURSE.

FRESHMAN YEAR.

	HOURS.
MATHEMATICS.—Algebra, Trigonometry, Mensuration, and Analytical Geometry.....	4-5-5.
ENGLISH.—March's Method. Grammar.....	2
FRENCH.—Grammar, composition and translation. (Third term)	2
GERMAN.—Grammar, composition and translation.....	2
CHEMISTRY.—Text-book, Lecture, and Laboratory work in Elementary and Organic Chemistry. (Four hours first term, two hours second and third terms)	4-2-2
DRAWING.—Industrial Drawing. (<i>Each Term.</i>).....	2
THE BIBLE.—Old Testament in English and Coleman's Geography of the Bible. (One hour throughout the year.)	1
HYGIENE.—Lectures.	
<i>Throughout the year</i> —Declamations and Themes.	

SOPHOMORE YEAR.

MATHEMATICS. <i>First Term.</i> —Analytical Geometry and Differential Calculus.....	4
<i>Second Term.</i> —Differential and Integral Calculus.....	5
PHYSICS. <i>Third Term.</i> —Elementary Mechanics (Moore)	4
ENGLISH. <i>First Term.</i> —Trench on the Study of Words.	
Bunyan: The Pilgrim's Progress.....	6
<i>Second Term.</i> —Rhetoric. Spencer: The Faerie Queene	3
<i>Third Term.</i> —Chaucer: Canterbury Tales.....	4
FRENCH AND GERMAN.—Language and literature.....	4
HISTORY.—Middle Ages.....	2
THE BIBLE.—The Acts of the Apostles in French.....	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

	HOURS.
PHYSICS.—Heat, Electricity, Magnetism, Optics, Acoustics. <i>First and Second Terms</i>	3
ENGLISH.—Bacon, Milton, and Shakespeare. (Four hours per week throughout the year).....	4
ANGLO-SAXON.—March's Grammar and Reader. (Four hours per week second and third terms).....	4
FRENCH AND GERMAN.....	2
PSYCHOLOGY.—(Second and Third Terms).....	2
LOGIC.—Jevons. (<i>Third Term</i>).....	2
BIOLOGY. <i>First Term</i> .—Mammalian Anatomy.....	4
HISTORY.—Constitution of the United States. (Second term.)....	2
THE BIBLE.—New Testament Epistles in German.....	1

ELECTIVES.

MATHEMATICS.—Calculus	4
HISTORY. <i>Third Term</i>	2
GEOLOGY. <i>Third Term</i>	2
BIOLOGY:—	
<i>Second Term</i> .—Histology (with French).....	2
<i>Third Term</i> .—General Biology.....	4

SENIOR YEAR.

ASTRONOMY.—Practical and Theoretical. (First term)..	2
MENTAL PHILOSOPHY. <i>First and Second Terms</i>	4
MORAL PHILOSOPHY AND THEISM.....	2
COMPARATIVE PHILOLOGY. <i>Third Term</i>	4
POLITICAL ECONOMY. <i>Second Term</i> (Walker).....	2
MODERN LANGUAGES AND LITERATURES. (Throughout the year.)	4
BIBLE	1
ELECTIVES, as in the Latin Scientific Course.	
<i>Throughout the year</i> —Theses and Extemporaneous Speaking.	

DEPARTMENTS OF ENGINEERING.

There are at present embraced in the curriculum three courses in ENGINEERING: Those of Civil, Mining, and Electrical Engineering. The location of the College is peculiarly favorable for such engineering schools. The city of Easton is a centre of railroads and canals, while bridges, foundries, pipe works for water and gas, cement works, rolling mills, repair shops, and many other industrial works are near at hand. Mines of iron, anthracite coal, and zinc are easily accessible, and extensive quarries of limestone, steatite, and slate are to be found in the immediate vicinity, and afford excellent opportunities for the study of mining operations. The demand, created by the great number of mechanical works in connection with these natural conditions and their development, for specially trained chemists has led to the establishment of a special course in CHEMISTRY.

COURSE OF INSTRUCTION.

The instruction in all the engineering courses is substantially the same during the first two years of the course, except that the electrical engineers substitute the study of physics and practical work in the physical laboratory for a part of the surveying, field, and office work of the other courses.

The following branches are common to all the courses:-

MATHEMATICS.

Professor Hall and Messrs. Brasefield, Fetters, Post, and Dickinson.

The attention of applicants for admission to technical courses is called particularly to the necessity of thorough

preparation in Mathematics. All candidates should be thoroughly grounded in fundamental principles and operations, and it is strongly recommended that the Preparatory Mathematics be carefully reviewed just prior to entrance. Readiness and accuracy is required not only in demonstrating propositions, but also in solving problems.

An accurate and ready knowledge of the preparatory work in Mathematics and a certain degree of mathematical maturity are indispensable to the successful prosecution of an Engineering course. Most of the men who fail in their College mathematics, fail because they are not prepared before coming to college to perform the ordinary operations in Algebra, Geometry, and Trigonometry, rapidly and accurately. It is therefore quite essential that these subjects, and especially the Algebra, be thoroughly reviewed just before entrance.

While the study of Mathematics as mental discipline will not be overlooked, the object will always be to give the student that working knowledge of the subject that will enable him to apply, accurately and readily, mathematical principles to the solution of engineering problems.

Higher Algebra, Plane and Spherical Trigonometry, Logarithms, Mensuration, and Plane Analytical Geometry are given in the Freshman year. The following subjects are given in the Sophomore year: Analytical Geometry of three dimensions, Differential and Integral Calculus, Differential Equations, and Least Squares.

ASTRONOMY.

In addition to a course in General Astronomy similar to that of the Classical Course, the Civil Engineers are

given a course in Practical Astronomy. This course keeps constantly in mind the needs of the Engineer. It includes a careful study of the Transformation of Astronomical Co-ordinates, a short discussion of Parallax and Refraction, a careful discussion of the construction, adjustment, and use of Astronomical Instruments, of the methods of determining Time and Latitude by means of the Sextant, of Time by the Transit Instrument, of the methods of determining Longitude, and of the methods of determining Latitude by the Zenith Telescope. The students are required to make frequent observations with the Sextant and Transit Instrument.

SURVEYING.

Professor Folwell.

For Drawing, Laboratory, and Field work an "hour" consists of three hours; for other studies, of one hour.

This course, progressive and practical, is as follows:—

FRESHMAN YEAR.

Third Term.

	HOURS.
Lectures and Recitations.....	1
Summer School of Surveying. (In vacation.)	Three weeks.

SOPHOMORE YEAR.

First Term.

Lectures, Recitations, Field and Office Work. Theory of Chain, Compass, and Transit Surveying; Leveling; Adjustment and Use of Surveying Instruments.....	2
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Second Term.

Lectures, Recitations, and Office Work. Pen and Colored Topography; Location and Construction of Roads, Streets, and Pavements.....	2
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Third Term.

	HOURS.
Lectures, Recitations, Field and Office Work. Topographical Surveying; Map of Survey; Notes; Railroad Surveying.	2
Summer School of Surveying. (In vacation.) Three weeks.	

JUNIOR YEAR.

First Term.

Lectures, Recitations, Field and Office Work. Railroad Reconnaissance and Location.	3
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SENIOR YEAR.

Third Term.

Geodesy; Lectures, Recitations, Field and Office Work. . . .	2
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DRAWING.

Professor Hall and Messrs. Brasefield and Fetters.

Instruction in the Elements of Mechanical Drawing includes the use and testing of drawing instruments and materials, the drawing of lines, pen tinting and shading, flat tinting with brush, and wet and dry shading in ink and in colors, free-hand pen shading; plans of buildings, instrumental copying, traced copying, and transfer of drawings, blue prints, and working drawings.

In addition to text-book exercises, free-hand sketches and mechanical drawings in ordinary orthographic, isometric, and clinographic projections are made from models constructed for this purpose.

The drawing for the first two years is arranged as follows:—

FRESHMAN YEAR.

First Term.

Elements of Mechanical Drawing.
Plane Problems. Free-hand Lettering.

Second Term.

Elementary Projections. Working Drawings.

Third Term,

Projections, including Shades and Shadows. Isometric and Cabinet Projections.

Model Drawing. Sketching.

SOPHOMORE YEAR.

First Term

Descriptive Geometry. Plates.

Plotting Surveys.

Second Term.

Descriptive Geometry. Plates.

Pen and Colored Topography.

Third Term.

Machine Drawing.

Map of Survey.

All the students in the Engineering, Chemical, and General Scientific Departments take the first year's work in Drawing, as shown above. All the students in the Engineering Departments take the second year's course. During the Junior and Senior years the drawing in the Technical Departments includes the following: Maps of Surveys, Graphic Statics, Constructions in Stone Cutting, Bridge Drawing, and graphical methods of locating faulted beds and veins.

MINERALOGY AND GEOLOGY.

Professor Peck.

Students in the Technical Courses begin work in this Department the first term Junior year, and complete it

the second term Senior year, with the exception of the students in the Mining Engineering course, who continue through the third term of the Senior year, taking the regular field work required of the Senior classicals, and in addition a short course in the geology of ore deposits, consisting of one lecture per week.

The first term Junior year is devoted to Crystallography, in which Elements of Crystallography, by G. H. Williams, is used as a text-book. The course is supplemented abundantly by laboratory practice.

The second term's work consists in a systematic review of mineral species, more especial attention being paid to their chemical and crystallographic relations and to their mode of occurrence in Nature. Instruction is given by lectures, which are illustrated by a study collection, consisting of some two thousand specimens, including the most important species.

The third term's work consists in a discussion of mineral aggregates, or how minerals combine to form igneous, metamorphic, and sedimentary rocks, which discussion is in direct preparation for the work in Geology which follows in the Senior year.

The Department has a large projecting apparatus to be used in demonstrating before a class the optical properties of the rock-forming minerals by means of polarized light, to which there is also a large microscope attachment for use in projecting upon a screen thin sections of rock for the purpose of showing their structure and mineralogical composition. Also five reflecting goniometers, with horizontal circle and of the most recent pattern, have been purchased, to be used by the more advanced students in the technical courses in determining the geometrical constants of crystals; and a new and

improved polariscope to be used in the study of crystal optics. (All of the above instruments were made by Fuess, in Berlin.) Four petrographical microscopes are also in the possession of the Department, and instruction will be given to the more advanced students in modern petrographical methods, *i. e.*, in the preparing and mounting of thin sections for study with the microscope.

The course in Mineralogy of the Junior year is followed in the Senior year by a course in the elements of Geology, in which Prof. W. B. Scott's text-book, *An Introduction to Geology*, is followed. The first term is devoted to Dynamical, Structural, and Physiographical, and the second term to Historical, Geology.

Students pursuing the course in Mining Engineering will, in the third term Senior year, take field work with the classical elective division, and will be given also a short course, consisting of one lecture per week, in the geology of ore deposits.

The text-book in the Technical Courses is Williams' *Crystallography*. *Crystallography* is taught with the aid of two hundred and fifty models in wood. Instruments are provided for the study of the optical properties of minerals. There is also a mineral dresser, a lathe run by electricity, and all the apparatus for the preparation, mounting, and microscopical study of thin mineral and rock sections.

CHEMISTRY.

Professors Hart and Wysor, and Messrs. DeLong and Chase.

The study in this Department begins with a course of lectures in General Chemistry. A text-book is used and

daily recitations are held. Each student is required to work in the Laboratory.

In the Mining Engineering and Electrical Engineering Courses this course is followed in the Junior and Senior years by courses in qualitative and quantitative analysis. Special attention is given to the analysis of engineering materials. The modern quick methods are thoroughly taught, theoretically and practically.

Partial or special students may enter the Laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

PHYSICS.

Professor Moore and Mr. Post.

The studies in this Department in all the courses at present occupy four recitations or lectures a week, beginning with the third term, Sophomore year, and continuing through the first and second terms of the Junior year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments.

In other subjects text-book study is accompanied with illustrative lectures, aided by apparatus which is continually enlarged and improved.

For students of the Technical Courses one period a week in laboratory work is required. Experiments in mechanics, sound, heat, electricity, magnetism, and light are performed by the student, thus illustrating and emphasizing the principles of each respective subject.

For the advanced studies of the Technical Courses in Analytical Mechanics and other topics of Mechanical Engineering see pages 72 and 8c.

In Physics, as well as in Astronomy, Chemistry, Engineering, and Natural History, the studies are illustrated by wall charts, twelve hundred in all, many of which give illustrations not otherwise easily accessible to students.

FRENCH AND GERMAN.

The courses offered in French and German continue through four and five terms respectively. They are designed to give the student a good reading knowledge, and to acquaint him with the literature and life of these nations. The work however, is not confined to texts of a literary nature, it also embraces the reading of texts on scientific subjects. Such texts treating on various subjects in Technology are read with a view to increase the students technical vocabulary, and to enable him to read with facility the foreign Journals of Technology.

HISTORY AND POLITICAL ECONOMY.

The Seniors pursue a course in Political Economy for one term. (*Vide* pages 25 and 27.)

RHETORIC AND ELOCUTION.

Prof. F. A. March, Jr.

See p. 28 for the general statement of the work in Elocution and Rhetoric, and p. 116 for the Literary Societies which are strongly recommended to the students of the Engineering Department.

A Thesis is required in all the Technical Departments as a condition of graduation. It must show evidence of

original investigation upon a subject appropriate to the Department and approved by the professor in charge. It must be neatly written upon regulation paper, bound and illustrated with such photographs, drawings, and sketches as may be needed. It will be prepared during the latter part of the Senior year, and an opportunity will be given at the close of the course to read and defend the same before a public audience. These Theses, accompanied by their drawings, photographs, etc., if accepted, become the property of the College, and are deposited in the Libraries of the various Departments.

COURSE IN CIVIL ENGINEERING.

Professors Porter and Folwell, and Messrs. Brasefield and Fetters.

The design of this course is to furnish such theoretical instruction and engineering practice as will prepare its graduates for immediate usefulness in the field and office, and, after a moderate amount of professional experience, enable them to fill positions of trust and importance in their chosen profession. During the last two terms of Senior year, students are offered a choice between two lines of study, in one of which special attention is given to the subject of Bridge Engineering, in the other to that of Municipal Engineering.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the field, laboratory, and drafting-room. Theoretical principles are illustrated and explained by such problems and examples, taken as far as possible from actual engineering practice, as will best serve the purpose. In addition to the regular lectures, occasional ones are

given by prominent engineers, in active practice, upon their specialties.

During the course visits are made to engineering structures, mills, etc., in connection with their special study. During the Senior year a tour of inspection is made of the prominent industries not otherwise accessible.

FACILITIES FOR INSTRUCTION.

The Department has a large equipment of instruments necessary for the various branches of engineering field practice, including chains, tapes, compasses, plane-tables, transits, levels, barometers, base-rods, standard base-line tapes and pulling apparatus, sextants, solar compasses, solar attachments for transits, floats, and current meters. A twelve-inch portable altitude and azimuth instrument of the latest and best form, from Fauth & Co., Washington, D. C., is used for instruction in Geodesy and Practical Astronomy. It is read by micrometer microscopes to single seconds, both of altitude and of azimuth, and is provided with level for double zenith distances. A precision level of the latest design is employed in instruction in precise leveling. The astronomical observatory contains an equatorial telescope, transit, an astronomical clock, meteorological instruments, etc.

For use in the lecture-room there are numerous models of the various types of bridges and roofs, several complete sets of full-weight sections of I and deck beams, channels, Z bars, angles, Phoenix and Keystone Columns, and the standard built sections; five foot section of a full weight plate girder, numerous full-weight sections of riveted joints, representing bridge and boiler

work, hand and power riveting; sections of steel rails for railroads and street railways, cable slots, etc.; drawings, photographs of engineering structures when completed and during construction; slide rules and other calculating machines.

The Department also has a full-weight pin-connected highway bridge of fifty feet span and fourteen feet roadway, weighing twelve tons, together with all false work and tools necessary to erect the same.

The main Testing Laboratory is thirty feet by sixty feet in dimensions, well lighted, and contains an Olsen Automatic Machine of one hundred thousand pounds capacity, three Riehle Automatic Machines of one hundred thousand, one hundred and fifty thousand and two hundred thousand pounds capacity respectively, and a sixty thousand pound Hydraulic Machine, all arranged for tension, compressive and transverse testing; a four-thousand pound wire tester, and a small machine for testing cord, twine, etc.; a transverse machine for specimens up to five feet in length, and provided with micrometers for measuring deflection; a torsion machine; a rattler for abrasion test of paving brick; improved elongation meters, and numerous smaller micrometers. The power for the laboratory is furnished by a twenty-five horse power electric motor.

The Cement Laboratory contains two two-thousand and one one-thousand pound machine for testing cement by tensile, compressive, or transverse stress; a machine for moulding briquettes under pressure, and a power-driven Boehme Hammer; a jig; a boiler for boiling tests; large immersion tanks, with running water, and the necessary moulds, sieves, scales, moist closets, etc.

The power for this laboratory is furnished by a three-horse power electric motor.

The Hydraulic Laboratory contains a large vertical tank arranged for making experiments on the flow of water through orifices and nozzles under heads up to three hundred feet, as well as several tanks for use under low heads; three tanks, two of them thirty feet long, for weir experiments; a turbine, Backus wheel, and other water motors; a Venturi meter, a measuring tank of a capacity of four thousand gallons, a smaller one of three hundred gallons, scales, and other appliances for measuring the water used in experiments, as well as arrangements for testing meters, nozzles, and fire hydrants, and for lecture-room illustrations. There is also connected with the laboratory a one-million gallon Worthington duplex pump. The laboratory is connected with a large cistern by four lines of sewer pipe of different sizes, each three hundred feet long, and arranged for making tests of joints and various experiments on flow of water.

The shop, which is in charge of a skilled mechanic, contains an engine lathe, drill press, a planer, a mineral lathe and saw, and the other necessary appliances for preparing test specimens, models, and apparatus, and for repair work.

The Library contains a number of the best and latest books and periodicals upon Engineering subjects, and students are encouraged to make free use of the same.

SPECIAL STUDIES.

The first two years of the course are spent in laying a foundation of pure mathematics. The last two years are devoted to the more purely professional work, which may be divided as follows:

SURVEYING.—The theoretical study of surveying extends over four terms, the field practice being confined almost entirely to the Summer School in Surveying. This school became a required part of the course with the year of 1901-02. The course in surveying includes land surveying, leveling, topography, hydrography, triangulation, railroad reconnaissance and location, and the elements of geodesy. Particular attention is given to have the students become rapid and at the same time accurate instrument men, to be able to handle a corps advantageously, to keep neat and systematic notes, and make a clear and correct map. No error is allowed in the field or map which is not within the limits observed in correct practice.

ANALYTICAL MECHANICS is taught by means of lectures and recitations, treating upon forces, their composition and resolution, conditions of equilibrium, centre of gravity, moment of inertia, theory of motion, momentum, impact, energy and friction; solution of numerous problems.

RESISTANCE OF MATERIALS.—This subject is treated by means of lectures, text-books, and laboratory practice sufficient to thoroughly fix in the mind the principles of stress and strain, the behavior of materials under tension, compression and shearing stresses, resistance of pipes and riveted joints, strength and flexure of simple, cantilever, restrained, and continuous beams variously loaded; formulas for columns, torsion, shafts; working-strengths and fatigue of materials; designing of rolled and built beams, shafts, and columns according to standard specifications. Visits are made in connection with this course to pipe and boiler works.

MATERIALS OF CONSTRUCTION.—This course is to familiarize the student with the qualities, requirements, method of testing, preserving, and cost of material used in engineering structures. In connection with this course, visits are made to blast furnaces, rolling and wire mills, quarries, and cement works.

BRIDGES AND ROOFS.—This course includes the computation of stresses in the various forms of trusses by both numerical and graphical methods. Following this, each student designs a roof-truss, and those electing Bridge Engineering design a plate-girder, and then a pin-connected bridge, according to standard specifications, making full computations, working-drawings, bill

of material, and estimate of cost for same; special attention being given to an economical design, and to joints and other details. Actual practice is given by the erection each year by the students of a full-weight, pin-connected bridge, belonging to the Department. Visits are made to bridges, and their details and general design are criticised, upon which written reports are made.

HYDRAULICS.—This subject is treated by recitations and laboratory work, embracing the study of head, velocity, and discharge through orifices, tubes, pipes, canals, and rivers; measurement of water-power; testing hydraulic motors.

MUNICIPAL ENGINEERING, which is preceded by a course in Bacteriology, is taught by lectures and recitations, supplemented by practice in designing. It covers the supplying of water, and construction of reservoirs, stand-pipes, and pumping plants; the purification of water, and its distribution through mains and appurtenances; methods of collecting sewage, both dry and water-carried, and of disposing of this and of garbage, including determining the size and capacity of sewers, mains, laterals, inlets, flush tanks, etc.; cleaning and lighting streets; drainage and ventilation of buildings; estimates and specifications. In connection with this study, frequent visits are made for the purpose of inspecting existing works, completed and under course of construction. Each student electing this course is required to design a system of distribution or sewerage for some imaginary town, making complete maps, bill of material, and detailed estimate of cost.

RAILROAD ENGINEERING.—The work on railroad engineering includes the mathematical discussion of curves, frogs, switches, and crossings; economical locations as to grades and curves; calculation of earthwork; designing of trestles, culverts and other structures; discussion of the properties and shapes of materials used in construction. The field practice consists of a reconnaissance and location of a line upon such ground as will best illustrate the problems occurring in actual practice, making a complete map, and designing such details as drains, culverts road-crossings, etc., calculating earthwork; complete set of notes of all work done in field and office; estimating cost, including equipment.

MASONRY CONSTRUCTION.—This course treats of the requisites of stone, brick, and cement; practice in the testing of these materials; the method of preparing mortar and concrete; strength of stone and brick masonry, foundations, dams, retaining walls, bridge piers and abutments; culverts and arches; study of existing structures; specifications and cost.

ROADS, STREETS, AND PAVEMENTS.—This course comprises the reconnaissance, location, construction, and maintenance of towns and country roads, city streets, and pavements; tramways and street railways; details of construction; street cleaning; testing the quality of road material; specifications; estimates.

ASTRONOMY. is taught by means of text-books and lectures accompanied by practice in fields and observatory. The practical work includes the work and adjustment of instruments, and the determination of time, latitude, longitude, and azimuth.

GEODESY.—This course includes the study of the instruments and the methods employed in measuring base lines, establishing stations, measuring angles, reducing triangulations, projecting maps, etc.

MACHINERY.—This course includes the theoretical principles of the steam-engine and other prime movers. Examinations and reports are made upon the power plants of some of the manufacturing establishments of the city, and upon locomotives, elevators, and cranes. The student is made familiar with the use of the steam indicator, planimeter, and speed indicator, and has practice in interpreting indicator diagrams.

The Department invites its friends and students to send specimens of materials, drawings, models, or photographs of bridges, machinery, or other engineering works. Illustrated circulars and price lists are also desired. Such contributions will be labeled with the donor's name and placed on exhibition, and when possible used in the work of the Department.

SYNOPSIS.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR.

First Term.

	HOURS.
MATHEMATICS.—Algebra (Wentworth).....	4
CHEMISTRY.—Lectures and Recitations (Hart).....	4

	HOURS.
MODERN LANGUAGES.—German Grammar, Composition, and Translation, 2; English, 2.....	4
DRAWING.—Elements of Industrial Drawing; Plane Problems	2
HYGIENE.—Lectures on Health.....	1
THE BIBLE	1

Second Term.

MATHEMATICS.—Trigonometry (Crawley's).....	5
CHEMISTRY.—Lectures and Laboratory Practice.....	2
MODERN LANGUAGES.—French, 2; German, 2; English, 2.	6
DRAWING.—Projections; Plates; Free-hand Lettering....	2
THE BIBLE.....	1

Third Term.

MATHEMATICS.—Spherical Trigonometry (Crawley's) and Analytical Geometry (Ashton's); Mensuration (Hall)	5
MODERN LANGUAGES.—French (continued), 2; German (continued), 2; English, 2.....	6
DRAWING.—Projections (Model Drawing); Plates.....	2
SURVEYING.—Instruments and their use.....	1
CHEMISTRY	2
THE BIBLE	1

Throughout the year—Themes.

SUMMER SCHOOL OF SURVEYING. (In vacation.).. Three weeks.

SOPHOMORE YEAR.

First Term.

MATHEMATICS.—Analytical Geometry (Ashton's), Differential Calculus (Hall).....	5
DESCRIPTIVE GEOMETRY (Hall).....	2
MODERN LANGUAGES.—French, 2; German, 2; English: Trench on Words, 2.....	6
SURVEYING.—Lectures, Recitations, Field and Office Work; City and Mine Surveying; Leveling; Map of Survey; Notes; Location and Construction of Roads, Streets, and Pavements.....	2
CHEMISTRY	2
THE BIBLE	1

Second Term.

	HOURS.
MATHEMATICS.—Differential and Integral Calculus (Hall)	5
DESCRIPTIVE GEOMETRY (Hall)	3
MODERN LANGUAGES.—German, 2; French, 2; Rhetoric, 1	5
DRAWING—SURVEYING.—Pen and Colored Topography..	2
ANALYTICAL CHEMISTRY.	2
THE BIBLE	1

Third Term.

MATHEMATICS.—Least Squares and Differential Equations	5
MECHANICS.—Elementary Mechanics (Moore) (one laboratory period)	4
DESCRIPTIVE GEOMETRY	2
CHEMISTRY.—Lectures and laboratory	2
SURVEYING.—Lectures, Recitations, Field and Office Work. Topographical Surveying; Survey of a small area; Map of Survey; Railroad Surveying	2
THE BIBLE	1

SUMMER SCHOOL OF SURVEYING (in vacation) Three weeks.

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity (one period in laboratory)	4
APPLIED MECHANICS	4
CHEMISTRY.—Metallurgy of Iron and Steel	2
MINERALOGY.—Crystallography	2
RAILROADS.—Lectures, Recitations, Field and Office Work. Railroad Reconnaissance, Location and Construction	3
THE BIBLE	1

Second Term.

MECHANICS.—Theory and Conditions of Equilibrium. Centre of Gravity. Moment of Inertia. Solution of Problems	4
PHYSICS.—Acoustics; Optics (one period in laboratory)	4

	HOURS.
MINERALOGY.—Descriptive	2
RESISTANCE OF MATERIALS	5
RAILROADS.—Locating, Designing and Estimating Quantities	2
THE BIBLE	1

Third Term.

MACHINERY.—Steam Engine, Elevators, Cranes. Lectures and Text-book	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory	4
SURVEYING.—Lectures and Recitations. Railroad Economics; Field Work; Topographical Surveying	2
MINERALOGY	3
SANITARY BIOLOGY	2
THE BIBLE	1
THEMES	

SUMMER SCHOOL OF SURVEYING (in vacation) . . . Three weeks.

SENIOR YEAR.

First Term.

BRIDGES AND ROOFS.—Theory and Calculation of Stresses in Simple Trusses by Analytical and Graphical Methods. Designing of a Roof-truss	6
HYDRAULICS.—Theory of Hydrostatics. Efflux of Water from Orifices and Tubes. Weirs. Flow in Pipes, Canals, and Rivers. Hydraulic Motors. Laboratory Work ..	5
GEOLOGY	2
ASTRONOMY.—Descriptive Astronomy. Text-book and Lectures	2
BIBLE	1

Second Term.

	HOURS.
MASONRY CONSTRUCTION.—Testing Laboratory.....	2
GEOLOGY.—Historic and Dynamic. Text-book and Lectures	2
ASTRONOMY.—Practical Astronomy. Observatory Work.	2
POLITICAL ECONOMY.....	2
BIBLE	1

ELECTIVES.

1. BRIDGES.—Theory and Calculation of Stresses in Continuous, Cantilever, and Suspension Bridge by Analytical and Graphical Methods. Designing of Plate-girders and Riveted Bridges, with Working Drawings. Estimates and Contracts..... 9
2. MUNICIPAL ENGINEERING. WATER SUPPLY.—Source and Supply of Water for Towns. Designing, Construction, and Maintenance of Systems..... 9

Third Term.

SURVEYING.—Field and Office Work. Precise Triangulation and Leveling. Elements of Geodesy.....	2
THESIS for Graduation	2
BIBLE	1

ELECTIVES.

1. BRIDGES.—Design of a Pin-connected Bridge, with Working Drawings. Bill of Material. Estimates and Contracts
- ERECTION.—Designing of False Work, and Erecting of Bridges. Practice in Erecting a Full-weight Pin-connected Bridge
2. MUNICIPAL ENGINEERING; SANITARY.—Designing, Construction, and Maintenance of Sewerage Systems. Sewage Disposal. Drainage, Ventilation, and Heating of Buildings. Street Cleaning and Garbage Disposal..

COURSE IN MINING ENGINEERING.

Professor Hall and Messrs. Brasefield and Fetters.

The aim of this course is to provide a good education, to lay a sound foundation in Engineering, and to give special preparation in Mining, Geology, Chemistry, Metallurgy, and Assaying.

The courses in Surveying, Analytical Mechanics, Resistance of Materials, Materials of Construction, Laboratory Physics, and Railroad Engineering have been fully described in connection with the Civil Engineering course.

The courses in Mathematics, Languages, Physics, and Pure Graphics are the same in all the Engineering Departments, and have been presented.

A course in the Theory of Steam Engineering is followed by Graphical Constructions and Computations.

In Mechanical Engineering, after the courses in Analytical Mechanics, Resistance of Materials, Materials of Construction, and Graphic Statics, a term of Machine Design and Construction is given.

In Surveying, the theory and practice extends through the first three years, and includes: Chain, Compass, Transit Surveying; Adjustment of Instruments; and Leveling; City Surveying; Location and Construction of Roads, Streets, and Pavements; Topographical Surveys; Railroad Reconnaissance, Location, and Construction, with Profile Plans, Earthwork Calculations, Bills of Material, Estimates, Specifications, and Contracts; Theory of Mine Surveying, and the actual survey of a mine.

Following the course in Electricity as given in Physics, two periods each week for one term are devoted to

the study of Electrical Machinery with selected laboratory work, having especial reference to the application of electricity to mining operations.

The course in drawing includes: Elements of Mechanical Drawing, tracings and blue prints; Free-Hand Drawing and Lettering; Descriptive Geometry; Topographical Drawing; Graphic Statics; Map Drawing; Machine Drawing and Design. Additional drawing is also required in connection with mining problems.

The work in Chemistry begins with the first term of the Freshman year, and continues, without any break, for two and one-half years. Lectures and text-book study are accompanied by recitations and laboratory practice.

Metallurgy is given in two terms, and embraces the metallurgy of iron, steel, gold, silver, copper, lead, zinc, etc. Thorough courses are also given in Assaying and Blowpiping.

Particular stress is laid on a thorough course in English, which extends over the first two years. The course includes the study of Rhetoric. Both German and French are studied each term for the first two years. Two periods each week for one term are devoted to the study of Political Economy, and the same length of time is given to the study of the Constitution of the United States. A theme written on some assigned technical subject is required of the student each term.

In addition to the courses in Mineralogy and Geology, as previously explained, the mining engineers are given a course of two hours each week for one term in the study of Ore Deposits, and a course of the same length is given in Economic Geology. Instruction in the class

room will be supplemented, so far as possible, by a study of the different kinds of ore, and of the "country rock" in which they occur. A special course in the modern methods of determining rocks in thin sections by means of the polarizing microscope, with instruction in the proper methods of preparing and mounting the sections, will be offered; and practice in the ordinary methods of field work in geology, with the mapping and sectioning of a certain region, will be given.

The course in Mining proper begins with the Theory of Mine Surveying and the solution of problems for determining the position of faulted ore bodies. Then follows Prospecting for ore deposits in lodes, beds, and placers; Prospecting for magnetite with the magnetic needle, and borings for water, oil, and gas. The study of Rope, Rod, and Diamond Drill Boring is followed by that of Blasting and Excavation. In this connection the various tools, machines, and explosives are studied, together with their application in Blasting and Quarrying. Shaft Sinking, Shaft Boring, and Tunneling are studied, together with the materials for the support of excavated spaces and the methods of their application. While all the methods of Exploitation are investigated, particular attention is given to the mining of soft ore bodies, and of anthracite and bituminous coal. In the treatment of Haulage and Winding, special consideration is also given to the requirements of coal mining. Prominence is given to the study of Ventilation and Lighting because of their great importance in coal mining. The subject of Drainage receives careful treatment. Mining Law is studied with reference to locations on public lands, and also with reference to the preven-

tion of mine accidents. The Mechanical Separation of Ores is studied, and designs and reviews of Special Mining Operations are made. The principles involved in determining the values of Mines and Quarries are discussed.

The Mining Engineer students use a separate room as a study. This is provided with an excellent Mining Library, and is supplied with the leading Mining periodicals. By the aid of a topical index, the library is regularly used in the study of the subjects assigned. The student is in this way led to many original sources for information, and becomes acquainted with the prominent works on Mining.

Magnetite, hematite, and limonite iron mines are close at hand, and the anthracite coal mines and zinc mines are easily accessible; these, with extensive quarries of slate, limestone, steatite, granite, serpentine, and sandstone in the vicinity, offer excellent opportunities for the study of mining and quarrying operations.

The Ingersoll-Sergeant Drill Company, one of the largest manufacturers of mine machinery in the world, is located at Easton. This gives the Mining students the opportunity of seeing the construction of important mine machinery and of testing the machines.

Frequent visits are made to the mines and quarries in the vicinity, and two weeks in the spring vacation are spent at some prominent mining region in the practice of Mine Surveying and in the study of Practical Mining. Students are advised to spend one long summer vacation during their course in actual work at the mines.

On the spring trip of 1906 a mine survey will be made in an anhracite coal mine near Hazleton, after which a tour of inspection will be taken in that region. During the long summer vacation an optional trip will be offered to the great iron ranges of Minnesota and the famous copper region of Michigan.

The equipment of the Department contains: a separate mine library, maps, charts, models, complete mine survey outfit, photographs, sample collection of ores, projecting lantern with several hundred slides, small machines and machine parts, working drawings with bills of material, trade catalogues, etc.

Attendance at one session of the Summer School of Surveying is required of the Mining Engineering students, and attendance at the second session is strongly recommended.

SYNOPSIS.

MINING ENGINEERING COURSE.

The Freshman and Sophomore years are the same as in Civil Engineering. (See page 75.)

JUNIOR YEAR.

First Term.

	HOURS.
MECHANICS.—Theory and Conditions of Equilibrium, Centre of Gravity, Moment of Inertia, Solution of Problems	4
PHYSICS.—Heat, Magnetism, and Electricity (one period in laboratory)	4
SURVEYING.—Lectures, Recitations, Field and Office work. Topographical Survey and Leveling. Map of survey	3
MINERALOGY.—Crystallography	2
CHEMISTRY.—Quantitative Analysis	2
THE BIBLE.—New Testament Epistles, in German	1

Second Term.

	HOURS.
APPLIED MECHANICS.....	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory.....	5
PHYSICS.—Acoustics. Optics (one period in laboratory).	4
CONSTITUTION OF THE UNITED STATES.....	2
MINING	2
MINERALOGY.—Descriptive Mineralogy.....	2
THE BIBLE	2
SPANISH (Optional)	2
MINING.—Practical Work in the Mines in the Spring Vac- ation.	

Third Term.

RESISTANCE OF MATERIALS.—Testing Laboratory.....	4
STEAM ENGINEERING.....	4
MINERALOGY.—Determinative	3
MINE ENGINEERING	2
RAILROAD ENGINEERING	2
THE BIBLE.....	1
MINING.—Map of Mine Survey.	
<i>Throughout the year.</i> —Themes.	
SUMMER SCHOOL OF SURVEYING (in vacation)....	three weeks.

SENIOR YEAR.

First Term.

HYDRAULICS.—Theory of Hydrostatics. Flow of Water in Pipes, Canals, and Rivers. Weirs. Efflux of Water from Orifices and Tubes. Hydraulics. Motors.....	5
MECHANICAL ENGINEERING.....	2
MATALLURGY	2
GEOLOGY	2
MINING.—Prospecting, Deep Boring, Blasting and Quarry- ing	6
BIBLICAL STUDY.....	1

Second Term.

	HOURS.
METALLURGY	2
GEOLOGY	2
ASSAYING	4
POLITICAL ECONOMY.....	2
MINING.—Shaft Sinking, Tunneling, Exploitation, Haulage, and Winding.....	5
BIBLICAL STUDY.....	1

Third Term.

FIELD GEOLOGY.....	2
ECONOMIC GEOLOGY.—Lectures, Recitations, and Field Work	2
ELECTRICAL ENGINEERING.—Electric Lighting and Electric Mine Machinery.....	2
MINING.—Ventilation, Drainage, Mechanical Separation of Ores. Designs for and Reviews of, Special Mining Operations	9
BIBLICAL STUDY.....	1
GRADUATION THESIS.	

COURSE IN ELECTRICAL ENGINEERING.

Professor Moore and Mr. Dickinson.

This course was organized in response to an earnest demand from students who sought opportunities of study in this department of science. It is parallel to the other technical courses, and differs from them in substituting the study of Physics, especially Magnetism and Electricity, for the strictly professional portions of the other courses.

The Sophomore year is the same as that of the civil engineers, except that two periods per week are given to work in the Physical Laboratory, amounting to six hours' actual laboratory work. In the Junior and

Senior years about one-half of the time of the students is given to special work in electricity and kindred subjects.

Graduates in the Department of Electrical Engineering receive the Degree of Electrical Engineer.

The laboratories are large and well arranged.

The *General Laboratory of Physics* is thirty by sixty feet in dimensions, well lighted and convenient. The ceiling is high, and ample wall space is provided for permanent pieces of apparatus. Gas, electricity, compressed air, etc., are close at hand.

The main *Electrical Laboratory* is also thirty by sixty feet in dimensions. This room is fitted up with all the appliances required in such a laboratory. The dynamo collection consists of representative types of continuous and alternating current generators and motors, lamp banks, water rheostats, brakes, etc.; and the necessary instruments are supplied for loading and testing motors and generators.

A transformer collection to show the representative American types is being made.

The laboratory is supplied from the Easton Power Company's station with continuous currents at one hundred and ten and two hundred and twenty volts, and with alternating current at sixty frequency. Other pressures can be obtained from generators in the laboratory; and alternating and polyphase currents of other frequencies can be generated at will by means of alternators and rotary converters. Galvanometers of all kinds, batteries, commercial testing instruments, etc., are in constant use.

The *Testing Laboratory* consists of two rooms, each

being about twenty-two feet square. It contains the necessary delicate instruments for accurate testing, among which are a Thompson Quadrant Electrometer, a Thompson Reflecting Astatic Galvanometer, several D'Arsonval Galvanometers, Resistance boxes, Wheatstone Bridges, Ballistic Galvanometers, Condensers, etc.

The Laboratory is also equipped with a high tension storage battery, for use in connection with tests upon insulating material.

The work in the Laboratory is quantitative as well as qualitative in character, special emphasis being placed on the necessity for accuracy and precision in all measurements.

A *Photometer Room* is provided, which is equipped with all apparatus necessary for the determination of candle power and the efficiency of incandescent lamps.

The *Spectroscopic Laboratory* is twenty-five feet long by twenty-one feet wide. It contains spectrosopes of the best makers. This room is also used as the Microscopic Laboratory. The Department is well supplied with microscopes.

The *Shop* contains a seven horse power Otto gas engine, besides a fifteen and a twenty horse power electric motor. There are lathes, emery wheels, and the other usual appliances of a repair shop.

The *Apparatus Room* is stocked with the latest and best instruments.

The *Lecture Room* is large, well lighted, and supplied with all the conveniences for table experiments. Steam, compressed air, gas, electricity, and sunlight are very carefully arranged for.

In addition to the dynamos and motors owned by the

College, the students have access to the Edison and municipal plants and to the finely equipped electric rail-ways of the city.

The *Physical and Electrical Library* is well stocked with the standard works on electrical and other subjects, and is kept up to the times by the constant addition of foreign and home periodicals. The latest advances in physical science are announced to the classes, and reports, written and oral, are made by the students upon them. The Library, in connection with the Laboratory, is regarded as an exceedingly important instrument of instruction.

The studies of the Freshman and of the Sophomore years are the same as in the Civil Engineering Course, except that in the Sophomore year Physical Laboratory work takes the place of Surveying.

JUNIOR YEAR.

First Term.

	HOURS.
PHYSICS.—Heat, Electricity. Lectures and Recitations..	4
PHYSICAL LABORATORY.—Electricity.....	2
ELECTRICAL ENGINEERING.....	2
APPLIED MECHANICS.....	4
DRAWING.—Descriptive Geometry.....	4
MINERALOGY	2
THE BIBLE	1

Second Term.

APPLIED MECHANICS.....	4
RESISTANCE OF MATERIALS.....	3
PHYSICS.—Acoustics. Optics. Lectures and Recitations	4
ELEMENTS OF MECHANISM.....	2
PHYSICAL LABORATORY.—Electrical Measurements.....	2
UNITED STATES CONSTITUTION.....	2
THE BIBLE	1

Third Term.

	HOURS.
ELECTRICAL ENGINEERING.—Dynamo Electric Machinery	2
Laboratory	2
RESISTANCE OF MATERIALS	3
STEAM ENGINE	4
MINERALOGY	3
THE BIBLE	1
THEMES.	

SENIOR YEAR.

First Term.

ELECTRICAL ENGINEERING.—Dynamo Electric Machinery.	6
Laboratory. Electrical Testing	2
HYDRAULICS	5
DRAWING.—Machine Designing and Drawing	2
THE BIBLE	1

Second Term.

ELECTRICAL ENGINEERING.—Alternating Currents	6
Electric Transmission	3
The Electric Telegraph	1
Laboratory	2
Methods of Electrical Testing	1
POLITICAL ECONOMY	2
THE BIBLE	1

Third Term.

ELECTRICAL ENGINEERING.—Alternating Current Machinery	6
The Electric Railroad	3
The Telephone	2
Laboratory. Electrical Testing	2
Designs for and Reviews of, Electrical Engineering Works.	
HISTORY	2
THE BIBLE	1
THESIS.	

Each term throughout the course—Elocution.

NOTE.—Laboratory work, as herein stated in "hours," represents three hours actual work, the "hour" indicating a "period" of that length.

COURSE IN CHEMISTRY.

Professors Hart and Wysor and Messrs. DeLong and Chase.

The aim of this course is to fit young men for practical work in chemistry, either as chemists in iron and steel works, in manufacturing establishments, or as chemical manufacturers. Great attention is paid to analytical chemistry, and especially to the chemistry of cement and the chemistry and metallurgy of iron and steel. Graduates are fitted to take paid positions as chemists immediately upon graduation. For men of the proper character immediate and remunerative employment can be secured. This course will also be found an excellent preparation for the study of medicine.

While the instruction centres in the two branches of Chemistry and Metallurgy, the course aims to supply a thorough education along the lines most necessary for a successful career as a responsible chemist. The same instruction in the Bible, Mathematics, Physics, the Natural Sciences, English, French, and German, which is required in the Engineering Courses, is required here, as will be seen in the synopsis. The study begins with a course of lectures on Descriptive Chemistry. In connection with these lectures each student is required to work in the laboratory. Each period of three hours is divided into a quiz of half an hour, two hours laboratory work and a half hour lecture, this division of time having been found most suitable. This course continues through Freshman year and includes instruction in Organic Chemistry.

In Sophomore year the descriptive chemistry is reviewed and after some introductory work, which

includes a short study of gas analysis, volumetric and gravimetric analysis, some electrolytic work and testing the balance and weights, Qualitative Analysis is taken up. The object of this introductory work is to demonstrate to the student by his own experience the necessity of careful work in order that correct results may be obtained. The drill in Qualitative Analysis is very thorough. At the same time great pains is taken to make it interesting and to illustrate practice by a study of theory with constant use of the library and the note book. Daily recitations are held for which purpose the class is divided. Drill is also given in Chemical Arithmetic as a part of this course.

In the third term, Sophomore year, Quantitative Analysis is begun with instruction in sampling and the preparation of samples for analysis. At the same time a review of the Organic Chemistry, including the preparation of at least two organic compounds with detailed reports on the literature, is begun. This lasts until the end of second term, Junior year. Instruction in volumetric, electrolytic and organic analysis, in glass blowing, etc., are not made separate studies but form part of the laboratory work, and proficiency in each is insisted on.

The course in chemistry is so planned that the Freshman and Sophomore years are spent chiefly in preparation. In Junior and Senior years those who are properly prepared are encouraged to spend most of their time in preparation for their future careers. This plan makes it unnecessary to multiply degrees in Chemistry which is not considered desirable.

It often happens that students taking this course are



GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY.

looking forward to a business career for which a study of chemistry is the most important preparation. In all such cases the widest liberty of choice is allowed in Junior and Senior years. Thus, if a student expects to be a tanner most of his time is given to preparation for work in this field during these years. Students who are looking forward to the study of Medicine after graduation are allowed to substitute Toxicology, etc.

A large proportion of the graduates in the chemical course have become chemists in iron and steel works and the following list of analyses required of men having this in view will give a good idea of the amount of work required:

1. Copper in Copper Sulfate.
2. Water of Crystallization in Copper Sulfate.
3. Lead in Lead Carbonate.
4. Silica, iron and alumina, lime (gravimetric and volumetric) magnesia, phosphorus (volumetric) and carbon dioxide in Limestone.
4. Silica, iron and alumina, lime and magnesia in cement and cement mixtures.
5. Silica, iron (volumetric) alumina, manganese (3 methods) lime, magnesia, phosphorus (gravimetric and volumetric) titanium (gravimetric and colorimetric), chromium (volumetric) and sulfur in iron ore.
6. Sulfur, volatile matter, fixed carbon and ash in coal. The ash is examined for silica, iron and alumina, lime, magnesia, phosphorus and alkalies.
7. Copper in copper ores.
8. Lead in galena.
9. Zinc in zinc ores.
10. Manganese, (colorimetric, gravimetric and volumetric) silicon, sulfur (gravimetric and volumetric) phosphorus (3 methods) carbon (2 methods) nickel (volumetric) tungsten, chromium, molybdenum, vanadium and aluminum in iron and steel.
11. Lead, (2 methods) copper (3 methods) zinc, arsenic, antimony, iron, aluminum, manganese, nickel, tin, bismuth and phosphorus in alloys.
12. Hardness, acidity or alkalinity, alkalies, calcium, magnesium, iron and alumina, chlorine, sulfuric acid, carbonic acid, total solids and organic matter in boiler water.
13. Oxygen absorbed by organic matter, ammonia free, combined and albumenoid, nitrites and nitrates in potable

water. 14. Carbon dioxide and monoxide, oxygen, illuminants, hydrogen and methane in furnace and flue gases. 15. Carbon, hydrogen, nitrogen (2 methods) in organic compounds.

METALLURGY.—The course in metallurgy is calculated to give the student a full knowledge of the underlying principles and at the same time a clear idea of the practice. In the discussion of each typical process, the problems attending an increased output and a better quality of the product are emphasized as well as the problems involved in present conditions of practice. Special attention is paid to American metallurgical practice.

Two lectures a week are given. Following each lecture two hours are spent in the laboratory. The work here is chiefly upon fuels, refractory materials and metals. The efficiency of various fuels is determined and methods of firing are studied. Tests are made of refractory materials by means of the electric furnace and pyrometer. The effect of impurities, temperature and mechanical treatment upon metals is studied with the help of a metallographic outfit.

THEORETICAL CHEMISTRY.—Two hours per week for the whole of the Junior year are devoted to the study of the theory of chemistry. The following are among the subjects considered. The work is done partly in the recitation room and partly in the laboratory: 1. Specific Gravity Determinations. 2. Melting and Boiling Point. 3. Solubility. 4. Faraday's Law. 5. The Gas Laws. 6. Molecular Weights by 2 methods. 7. Electric Conductivity. 8. Periodic Law. 9. The Phase Rule. 10. Specific Heat. 11. Spectrum Analysis. 12. Microscopic Crystallography. 13. Photographic Work. 14. Calorimetry. 15. Polariscopic Work.

INDUSTRIAL CHEMISTRY.—Two hours per week during the first term of Senior year are given to the study of Industrial Chemistry. This is supplemented by preparation work in the industrial laboratory. No attempt is made to cover the whole field but attention is concentrated upon the preparation of the so called "heavy chemicals" each of which is carefully treated from a commercial standpoint. This work is further supplemented by evening lectures by persons engaged in the chemical industries.

ASSAYING.—This covers two periods of six hours for the second term Junior. Most of the time is devoted to silver, gold and lead. The equipment comprises two Burlingame Furnaces (such as are used in Denver) each having 3 large muffles.

Partial or special students may enter the laboratories at any time, provided they have sufficient knowledge of chemistry to work advantageously. Advanced students have opportunity for continuing their studies or for conducting investigations.

The department is now housed in Gayley Hall, a fine new fire-proof building erected especially for it by James Gayley, of the Board of Trustees. This building contains four large and several smaller laboratories, lecture rooms, quiz room, assay laboratory, metallurgical laboratory, crystallizing and gas analysis rooms.

Large additions have been made to the equipment within the past year. The metallurgical laboratory contains a full shop equipment, grinding machinery and electrical furnaces for roasting ores at uniform temperatures. There is also an electric pyrometer and metallographic outfit for testing the heat treatment of metals.

Among the pieces of apparatus bought during the year are a fine spectrometer, Beckmann apparatus, Parr Calorimeter, Kryptol furnace, metallographic outfit, and oil furnace and viscosimeter. Throughout the different laboratories no expense or pains have been spared to bring them into harmony with the best current practice. A course of lectures, mostly by graduates of the department now engaged in practical work, is given annually in the lecture room of Gayley Hall.

The Henry W. Oliver Chemical and Metallurgical Library has a separate room in this building, and is open to students during study hours and on Monday, Tuesday, Thursday and Friday evenings from seven to ten o'clock. This library was endowed by Henry W. Oliver, of Pittsburg. The collection of chemical books formerly belonging to the college has been added to it by vote of the Trustees and considerable additions are annually made by purchase and gifts. In 1901 a complete and very beautiful set of the *Berichte der Deutschen Chemischen Gesellschaft* and in 1903 a complete set of the Journal of the Iron and Steel Institute were added; in 1904 a complete set of the *Transactions of the Institute of Mining Engineers* was presented by a friend of the College and the set of the *Annales de chimie et de physique* was completed. Numerous single volumes and dictionaries were also acquired by gift or purchase.

A friend of the College has bought and presented to the Henry W. Oliver Chemical and Metallurgical Library all the pamphlets, about 3,000 in number, belonging to the library of the late Prof. Johannes Wislicenus, of the University of Leipsic.

This library represents the collection of fifty years of great activity, and will be a great addition to the Oliver



SOUTH COLLEGE.

Library. It is now being indexed and bound. The Oliver Library now contains about 1800 volumes.

In addition, the students have access to Professor Hart's private chemical library, embracing about one thousand volumes. These libraries contain full sets of the *American Journal of Science*, *Dingler's polytechnisches Journal*, *Wagner's Jahresbericht*, *Journal of the Society of Chemical Industry*, *Fresenius Zeitschrift*, *American Chemical Journal*, *The Journal of The American Chemical Society*, *Zeitschrift für angewandte Chemie*, *Zeitschrift für anorganische Chemie*, *Zeitschrift für physikalische Chemie*, *Berichte der deutschen chemischen Gesellschaft*, *Annales de chimie*, *Journal of The Iron and Steel Institute*, *Transactions of the American Institute of Mining Engineers*, a nearly complete set of *Liebig's Annalen*, and partial sets of the *Comptes Rendus*, *Bulletin de la société chimique*, *Journal für praktische Chemie*, *Chemical News*, *Journal of the Chemical Society*, *Chemisches Centralblatt*, and many dictionaries and special works upon Chemistry and Metallurgy.

SYNOPSIS.

CHEMICAL COURSE.

The Freshman and Sophomore years are the same as in the Civil Engineering course, except that in the latter year Chemistry takes the place of Surveying in the first, second and third terms, of Descriptive Geometry in the second term and of drawing in the third.

SOPHOMORE YEAR.

Third Term.

	HOURS.
MECHANICS.—Elements of Mechanics (Moore) (one period in laboratory).....	4

	HOURS.
ANALYTICAL CHEMISTRY.—Laboratory.....	6
CHEMICAL ARITHMETIC.....	3
ORGANIC CHEMISTRY.....	2
THE BIBLE.—The Acts.....	1
<i>Throughout the year—Declamations and Themes.</i>	

JUNIOR YEAR.

PHYSICS.—Heat, Electricity, Magnetism, Optics, and Acoustics, (First two terms) (one period in laboratory).....	4
MINERALOGY.— <i>First term</i>	2
<i>Second term</i>	2
<i>Third term</i>	3
SCIENTIFIC GERMAN.....	1
CHEMISTRY.—Theoretical and Practical, including Qualitative and Quantitative Analysis, and Laboratory work in Organic Chemistry, and in Assaying. (8 hours first and second terms; 12 hours third term).....	8-12
THE BIBLE.—New Testament Epistles, in German.....	1
<i>Throughout the year—Declamations and Themes.</i>	

SENIOR YEAR.

CHEMISTRY.—Advanced work in all departments of Chemistry, Metallurgy, Chemical Technology, with special work in some selected department. (14 hours first term; 12 hours second term; 14 hours third term).....	12-14
GEOLOGY.— <i>First term</i>	2
<i>Second term</i>	2
POLITICAL ECONOMY.—General Principles. (Second term)	2
HISTORY.—Lectures on the development of European institutions. (Third term).....	2
SCIENTIFIC GERMAN.....	1
THE BIBLE.—History and Evidences.....	1
<i>Throughout the year—Themes and Extemporaneous Speaking. Chemical theses.</i>	

GENERAL INFORMATION.

ATTENDANCE.

Attendance on all College exercises is strictly required. Absences on account of sickness, or for other satisfactory cause, may be excused, and leave of absence will be granted at the request of parents when absolutely necessary. In such cases the absence is excused, but the student is invariably required to make up such work as he may lose by reason of his absence. Reports are sent to parents whenever the absences of their sons exceed a reasonable number. In cases of the absences becoming excessive, the faculty will punish the neglect with suspension. Absences incurred at the beginning and end of terms, especially if they involve absence from examinations, and immediately preceding and succeeding holidays, are regarded with especial disapproval and under ordinary circumstances will not be excused.

Each student is expected to have sixteen recitations each week. Three hours of field or laboratory work are regarded as equivalent to one recitation period. The regular gymnasium drills are also regarded as required exercises as far as prescribed. No student is permitted to take a course involving fewer hours of recitation without a special vote of the Faculty.

EXAMINATIONS.

Examinations are held at the close of each term on the studies of that term, and may be either written or oral, or both, at the option of the professor in charge. In addition to these regular examinations, partial examinations and written recitations are held from time to time during the term, with or without notice to the students.

Failure to attend an examination, except for reasons of absolute necessity, is regarded as a serious delinquency, and will be dealt with according to the circumstances of each case.

STANDING.

The scholarship of students is determined by the results of the examinations and daily recitations combined.

Students entering with conditions are required to make them up before the end of the term next after that in which they enter.

Students failing to pass in any studies of any term are required to make up such studies before the end of the next term, and they may be specially directed to do so at an earlier date. Students who do not comply with these regulations will be put on probation in scholarship, or lose standing and be only "permitted to recite," or be dropped into the next lower class, as the Faculty may, in each case, decide.

Reports of the standing of the students are made to their parents or guardians at the end of each term.

RULES GOVERNING ABSENCES AND RE-EXAMINATIONS.

1. No absence from a recitation, a lecture, or a laboratory exercise shall be excused.

2. If the number of a student's absences in any term from the exercises in any subject exceeds the number of exercises per week in the subject, but not double the number, he may, at the discretion of the teacher in charge, be debarred from the term examination in the subject, provided the number of absences is not less than three.

If he is debarred, he must pass on the subject before the first day of the next term or repeat the subject with a following class.

3. If the number of a student's absences in any term from any subject exceeds double the number of exercises per week in the subject, he must repeat the subject with a following class, provided that the number of such absences must exceed three.

4. If, for special reasons, the head of the department recommends it, the Faculty may vote that a student who would otherwise be required to repeat a subject by Rule 3 be given one examination on the subject. If he fails in this examination, he must repeat the subject.

5. Before a student may take the examination provided for in Rule 4, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the teacher in charge of the examination.

6. The teacher in charge of each subject shall, at the beginning of each week, post in some place easily accessible to the students interested, the number of absences from the exercises of the subject of each student to date.

7. All absences shall be reported weekly to the Clerk of the Faculty, who shall record them.

8. When the number of a student's unexcused and unpermitted absences from the religious and other exercises of the College reaches five, he shall be warned by his class dean; when it reaches ten, he shall be again warned; when it reaches fifteen, he and his parents shall be warned that he is in danger of being dropped from the College rolls; when it reaches twenty, he shall be dropped.

PERMITTED ABSENCES.

9. In case of absence due to prolonged sickness or request from home for urgent reasons approved by the class dean, the student shall, as soon after the absence as possible, present to his dean a written statement of the cause of his absence, after which the dean shall give the student an exact statement of the duration of his absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then take it to the Clerk of the Faculty, and the absences indorsed upon it shall not be counted by the Clerk in making up the number of Rule 8.

When such permitted absence causes the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done by the class during as many of these absences as are required to bring his absences below the debarring number by an examination to be held within a month of the absences.

If he fail in this examination, he shall be debarred from the term examination and required to pass on the subject by a special examination to be held before the first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars, and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

10. When permission to be absent from town has been given to a student by vote of the Faculty or by the President acting for the Faculty, such student shall receive from the Clerk of the Faculty an exact statement of the duration of such absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then return it to the Clerk of the Faculty and the absences indorsed upon it shall not be counted by the Clerk in making up the numbers of Rule 8.

When such permitted absences shall cause the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done during as many of these absences as are necessary to bring his absences below the debarring number by an examination held within a month of the absence.

If he fail in this examination he shall be debarred from the term examination and required to pass on the subject by a special examination to be held before the first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

11. If professors, in whose departments a student has the majority of his hours per week, report to the Faculty that the student is neglecting his work, he and his parents shall be warned that he is in danger of being dropped from the college rolls. If a second such report be made, he shall be dropped.

RE-EXAMINATIONS.

1. A student who fails at the regular term examination, in any subject, shall be entitled to one re-examination.

2. If, for special reasons, the head of the department recommend it, the Faculty may vote that a student who has failed in the re-examination provided for in Rule 1 may be given a second re-examination.

3. Before a student can take the second re-examination provided for in Rule 2, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the instructor in charge of the examination.

4. If, at the beginning of the college year, a student has failed to pass on his conditions of the preceding year in the Departments of Mathematics, Mechanics, Physics—he shall be required to repeat the subjects in which he is still conditioned.

5. When subjects, which closely depend upon each other, are continued through successive terms, the department interested may require that all conditions of any term in those subjects shall be made up within two weeks from the beginning of the next term, in order that the student may go on with those subjects.

GRADUATION.

Students who have pursued the entire course as prescribed and have successfully passed their examinations are recommended to the Trustees for the first academic degree in course. Such recommendations are ordinarily acted upon and the degrees are conferred at Commencement, at which time the students receive diplomas from the President of the College. At Commencement the Faculty awards such honors as it sees fit to those who are to receive degrees. These honors ordinarily consist of a valedictory oration, a Latin salutatory, and other honorary orations and theses.

COMMENCEMENT.

The third Wednesday in June and the three days immediately preceding it are set apart for the exercises in connection with the annual Commencement. On Sunday, the first of these days, a Baccalaureate sermon is preached in the College Chapel at eleven o'clock in the morning; and in the evening a sermon is preached in the auditorium of Pardee Hall before the Brainerd Society of the College by some distinguished minister selected by the Society.

The preacher for 1905 was Rev. John Balcom Shaw, D. D., '85, of Chicago, Ill.

On Monday the Senior Class holds its Class Day exercises on the campus.

The Alumni and Literary Societies hold their reunions on Tuesday, and orations are delivered before the respective societies in the Society Halls. The annual address before the Alumni in 1905 was delivered by William E. Geil, '90, A. M. of Doylestown, with in-

formal addresses by several representatives of reunion classes.

The regular Commencement exercises are held in the auditorium of Pardee Hall on Wednesday morning, the afternoon being occupied by the Alumni dinner. All these exercises are open to the public. Various other exercises of an athletic or social nature are conducted on the part of the students under a general supervision by the Faculty.

DEGREES.

THE FIRST DEGREE.—The degree of *Bachelor of Arts* is conferred on the graduates of the Classical Course; *Bachelor of Philosophy*, on those of the Latin Scientific Course; *Bachelor of Science*, on those of the General Scientific Course; *Bachelor of Science* (in Chemistry), on those of the Chemical Course; *Civil Engineer*, on those of the Civil Engineering Course; *Engineer of Mines*, on those of the Mining Engineering Course; *Electrical Engineer*, on those of the Electrical Engineering Course.

MASTER'S DEGREE.

MASTER OF ARTS.—The degree of *Master of Arts* may be conferred one year after graduation on any *Bachelor of Arts* who has pursued a prescribed course of study, equivalent to sixteen recitations per week during one year in residence, passed the examinations, and presented a satisfactory thesis.

The same degree may be conferred two years after graduation on any *Bachelor of Arts* who shall have devoted at least one year exclusively to advanced study under the direction of the Faculty, passed examinations in the studies pursued, and presented a satisfactory thesis.

Candidates for this degree must in all cases register on or before October 1st, and examinations must be held at the College at least once in each College term. Theses must be presented for approval not later than May 1st. A registration fee of \$5 and tuition fee of \$100 per annum for residents, and \$45

per annum for non-residents, is exacted of all graduate students.

MASTER OF SCIENCE.—The degree of *Master of Science* may be conferred upon any graduate of the Scientific Department upon conditions similar to those prescribed for the degree of Master of Arts.

DOCTOR OF PHILOSOPHY AND OF LETTERS.

The degree of *Doctor of Philosophy* may be conferred three years after graduation on any college graduate who, during three years of continuous residence at the College, shall have devoted himself exclusively to advanced studies under the direction of the Faculty, passed examinations in them, and presented a satisfactory thesis. The candidate must designate three branches of study which he desires to pursue, each in a different department, one major or principal study, and two minor studies. The faculty will recommend for this degree men of high capacity and attainments only. Length of residence or time spent in study constitute no claim for its bestowal.

The regulations governing registration, examination, theses, and fees are the same as for the Master's degree.

Any graduate of a recognized college may be permitted to pursue graduate studies under the direction of the professors in the various departments upon satisfactory evidence of his fitness to do so. No curriculum is prescribed for such students. A course of study is usually arranged after consultation which will meet the specific object each student has in view.

CERTIFICATES.

Students who have been admitted to any department of the College, and have passed satisfactory examinations therein, may obtain certificates of the work which they have done if they have been in attendance not less than one year.

RELIGIOUS INSTRUCTION.

The aim of Lafayette College is distinctly religious. Under the general direction of the Synod of Pennsyl-

vania of the Presbyterian Church its instruction is in full sympathy with the doctrines of that body. At the same time religious instruction is carried on with a view to a broad and general development of Christian manhood within the lines of general acceptance among evangelical Christians, the points of agreement, rather than those of disagreement, being dwelt upon.

Prayers are held each morning in the Chapel at 7:50 and religious services in the Chapel Sunday mornings at 11 o'clock. All students are expected to attend these services. No exceptions will be made to this rule for morning prayers. Where there is some exceptional reason assigned by the parents, students will be permitted to attend one of the churches in Easton instead of the Sunday morning service. This permission will only be granted on request of parents and for sufficient reason.

Special sermons are preached before the College from time to time by distinguished ministers. The preachers for 1905 were Rev. James Moore, '93, Phillipsburg, N. J.; E. T. Colton, New York, N. Y.; Rev. Arthur J. Brown, D. D., New York, N. Y.; Rev. Rufus W. Miller, D. D., Philadelphia; Rev. J. De Hart Bruen, Belvidere, N. J.; Rev. George B. Stewart, D. D., Auburn Theological Seminary; Rev. Joseph W. Cochran, D. D., Philadelphia; Rev. Herbert R. Burgess, Philadelphia; Rev. Edward G. Fullerton, D. D., Wilkes-Barre; Rev. Robert Christie, D. D., Allegheny; Rev. William H. Oxtoby, D. D., Philadelphia; Rev. Milton L. Cook, Wyalusing; Rev. W. P. Swartz, Ph. D., Poughkeepsie, N. Y.; Rev. J. Balcom Shaw, D. D., '85, Chicago, Ill.; Rev. John R. Davies, D. D., '81, Philadelphia; Rev. Charles H.

Miller, '96, Catasauqua; Rev. Mervin J. Eckles, D. D., '77, Philadelphia; Rev. E. Trumbull Lee, D. D., Philadelphia; Rev. Frederick E. Stockwell, Beverly, N. J.; John Willis Baer, New York, N. Y., members of the College Faculty and the local clergy.

The preacher for the Day of Prayer for Colleges, 1906, is Rev. Marcus A. Brownson, D. D., Philadelphia.

Instruction in the Bible has always held a prominent place in the College, and a full account of the courses in Bible study will be found on page 19.

LECTURES.

Special courses of lectures are given annually in connection with several departments and will be found under those departments. A more general course of a popular character is given each year.

Among those who have given lectures during the year 1905 are: Dr. M. A. Bigelow, Columbia University; Charles D. Dowton, Pittsburg; C. Spencer Kinney, M. D., Easton; Prof. William B. Owen, Ph. D., '71, Easton; Arnold Guyot Cameron, Ph. D., Princeton; Dr. W. A. Noyes, Washington, D. C.; Prof. Robert Hall, Lehigh University.

TERMS AND VACATIONS.

The College year is divided into three terms, with intervening vacations, as given in the Calendar on page 5. All the classes are examined at the close of each term, and a report sent to the parent or guardian. Students are required to be present punctually at the beginning of each term, and are not allowed during term-time to be absent from town, except by written permission from the President.

The Wednesday after the 20th of October in each year is observed as Founders' Day, in memory of those who founded the College and of those who have since contributed to its usefulness. On Founders' Day, 1905, an address was delivered by Arnold Guyot Cameron, Ph. D., of Princeton, N. J.

BUILDINGS. LABORATORIES. LIBRARIES.

The College grounds are situated upon the summit of a beautiful hill, overlooking the city of Easton. They are reached by a flight of stone steps, which ascend the bold front of the hill directly from the head of Third Street, or by electric cars, which skirt the face of the hill by a gradual incline. At the head of the steps stands the monument erected by the Alumni Association to their comrades who "died for the Union." The grounds contain about forty acres, terraced and laid out under the direction of Donald G. Mitchell. The buildings upon the campus are thirty in number. The oldest of these is

SOUTH COLLEGE.

The central portion of this structure is the original College building, erected in 1833. It contains several lecture-rooms and a number of dormitory rooms. Two wings were added to the original building, which contain the College Chapel and lecture-rooms for the English, Latin, and Greek Departments.

THE VAN WICKLE MEMORIAL LIBRARY.

The Van Wickle Library was dedicated on May 30th, 1900. It has given to the College one of the most needed additions to its equipment. A beautiful building

of Pompeian brick and terra cotta, thoroughly furnished with the most approved appliances for library work, it is at once a most beautiful and useful feature in the College's development. It contains a large reading room, in which the periodicals and books of most constant reference are to be found; a reference book department; a large room for the general storage of the Library; Librarian's room, and small rooms for special work.

PARDEE HALL.

The most commanding position on the campus is occupied by this building, the most conspicuous evidence of the liberality of the late Ario Pardee, which reached to every department of the College. Here the departments of Civil, Mining, and Electrical Engineering are supplied with thoroughly-equipped laboratories, and lecture-rooms, and the museums of these departments, and of General Geology, Mineralogy, and Natural History, are to be found. The Ward Library and the handsome rooms of the two Literary Societies are also in this building, and the central portion of the second and third floors of the main building contains a beautiful auditorium, in which the Commencement exercises, lectures, and other public entertainments are held.

JENKS BIOLOGICAL HALL.

This building was erected in 1864-65 by the late Barton H. Jenks, of Philadelphia. It was recently entirely remodeled.

THE GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY,

Completed in 1902, is occupied by the departments of Chemistry and Metallurgy. The building consists of

three stories, and is constructed of Indiana stone, Colonial brick, and gray terra cotta. It is fireproof, with steel and cement floors, and gives a thoroughly modern equipment to these departments. This building contains also the Henry W. Oliver Chemical and Metallurgical Library.

THE ASTRONOMICAL OBSERVATORY,

In addition to the observatory proper, contains a lecture-room, with accommodations for the students in Astronomy.

WEST COLLEGE.

Contains the lecture-room of Dr. Francis A. March and the offices of the Registrar and Treasurer of the College.

THE GYMNASIUM,

which has already been sufficiently described on page 21, contains a complete equipment for physical training.

THE DORMITORIES.

A complete reorganization of the dormitory system was effected in the summer of 1900 by the building of central structures, known as Knox and Fayerweather Halls, to connect Blair and Newkirk Halls and Martien and Powell Halls respectively, and the facing of the completed buildings with mottled Pompeian brick, handsomely trimmed with red terra cotta. The architectural beauty of the buildings is in marked contrast with the former appearance of the separate buildings. These halls are connected with McKeen Hall in a common steam plant. A complete sanitary plumbing system of baths, sinks, closets, and electric lights has been installed in all the buildings. These improvements

leave nothing to be desired for the health and comfort of the students.

INFIRMARY.

A building on the extreme northeast corner of the campus, facing upon McCartney Street, is set apart for the use of sick students, thus securing quiet and complete isolation in case of the occurrence of any contagious disease.

This building is intended solely for the use of students rooming in the College buildings.

BRAINERD HALL.

This building for the Y. M. C. A., the gift of J. Renwick Hogg, Esq., '78, of the Board of Trustees, was erected in 1902. It is a three-story gray stone building in the Tudor Gothic style. It contains a large room for the meetings of the society, and reading, writing, and committee rooms; also a trophy room for the Athletic Association, a room for the collection of curios from foreign missionary fields, and bowling alleys in the basement.

Its object is to afford a home under active Christian influences for all forms of student life.

The remaining buildings consist of a large GREENHOUSE, a useful adjunct to the Department of Botany, and also supplying flowers and plants for the adornment of the grounds in summer and of the buildings on public occasions. Besides these, a number of buildings are occupied as the HOMES OF THE MEMBERS OF THE FACULTY. The intimate relations resulting from the residence of both Faculty and students upon the college



BRAINERD HALL.
Erected for the College Y. M. C. A., 1902, by James Renwick Hogg, '78.

grounds are regarded as one of the most wholesome features of the college life.

LIBRARIES AND READING-ROOM.

The main regular College Library occupies the Van Wickle Memorial Library, described above. The College Library was established at the foundation of the College, and has had a steady and uninterrupted growth since 1832, and is chiefly made up of books bearing directly on the courses of instruction. The Ward Library, the gift of the heirs of C. L. Ward, Esq., of Towanda, is largely made up of books of general literature and history and Political Science. Each of the Technical Departments has also a collection of books, magazines, and other scientific publications in rooms in immediate connection with their lecture-rooms and laboratories. By the gift of \$5,000 Mr. Henry W. Oliver laid the foundation of the H. W. Oliver Chemical Library in the new Gayley Laboratory. The foundation has been added to by gifts from Prof. Edward Hart and others, and the incorporation of the College's collection of chemical works.

A friend of the College has bought and presented to the Henry W. Oliver Chemical and Metallurgical Library all the pamphlets, about three thousand in number, belonging to the library of the late Prof. Johannes Wislicenus, of the University of Leipsic.

The Literary Societies, also, have libraries numbering about 6,000 volumes, largely of a literary character, which valuably supplement the more solid libraries of the College.

The College Library contains a papyrus scroll, five feet long, from a mummy at Thebes, with a hieratic inscription—pronounced by Seyffarth the finest he has seen—presented by the late Hon. John W. Garrett, of Baltimore, of the Class of '37, and a collection of prints and medals of General Lafayette presented by the late President William C. Cattell, D. D., LL. D.

There is also a full-length portrait of Lafayette, by Healey presented by the late Dr. Thomas W. Evans, of Paris.

ALUMNI ALCOVE.—A collection of books and pamphlets written by the Students, Alumni, Faculty and Trustees of the College is being gathered and set apart as a "Lafayette Library" to represent the literary activities of the College. This unique and valuable collection now numbers about 369 volumes, and includes a full set of the College Catalogues from 1832 to the present time, the Commencement addresses, and official publications of the College.

The LIBRARIES have received gifts, which are hereby gratefully acknowledged, from the following individuals and institutions:

Individuals:

Richard Hincley Allen; Mrs. Henry Martyn Boies; J. Turner Brakeley (58); Mrs. Sarah K. Bolton; Rev. S. J. Coffin, Ph. D. (17); Rev. Wilmer E. Coffman, '95 (37); Prof. Alvin Davison; L. D. Dickinson (3); Joseph S. Elkinton (14); Rev. W. H. Filson, '68 (15); Roger Foster (2); Anderson Fowler; Rev. Louis Rodman Fox (5); John Fulton; William E. Geil, M. A., '90 (3); Harry Hakes, LL. D. (225); Prof. Edward Hart (3); Thomas A. H. Hay, '76 (3); J. B. Hench, '83, (5); Clay W. Holmes, '69 (3); John W. Jordan, LL. D., (2); Henry B. Kummel, 9 charts; Baxter B. McClure (8); Rev. Rufus W.

Miller, D. D., '83 (2); F. C. Monfort, D. D.; D. W. Nevin, '75 (22); Frank Overton, '90 (3); I. P. Pardee, '74 (2); Prof. J. T. L. Raschen; Richard Rowland; Nathan C. Schaeffer; Rev. A. Schultze, D. D., '93; William P. Shockley, '94; Hon. J. H. Shull (2); President E. D. Warfield; Charles Stewart Welles; Walter Williams; W. S. Yeates (2).

Firms and Institutions:

A. B. C. F. Missions, pamphlets; American Book Co.; John W. Crerar Library; Brazilian Commission, Louisiana Purchase Exposition; Harvard University; Iowa Geological Survey; Maryland Geological Survey (2); New Jersey State Board of Health; New Jersey State Geologist; New Jersey State Librarian (2); New York Historian (3); New York State Library (4); Peabody Institute; Pennsylvania State Geologist (2); Pennsylvania State Library (42); Royal Society of Canada (2); Theta Delta Chi Fraternity; Universal Congress of Lawyers and Jurists, St. Louis, Mo.; University of Chicago (10); Williams College.

United States Government: Bureaus and Departments, viz.:

Bureau of Education; Bureau of Ethnology; Commissioner of Labor; Department of Agriculture (9); Department of Commerce and Labor (3); Ethnological Survey for the Philippine Islands (2); Interstate Commerce Commission; Library of Congress (7); Navy Department (2); Smithsonian Institute (8); Superintendent of Documents, (48), 76 pamphlets; War Department (11);

The Class of 1871 has given to the College a fund the proceeds of which are to be used for the purchase of the publications of the Early English Text Society. The Library now contains a large and valuable collection of these.

The Class of 1875 at its reunion in 1905 by the gift of one thousand dollars established an alcove in the Library to be known as "The Francis A. March Alcove."

The Class of 1892 at its decennial reunion in 1902 established an alcove in the Library devoted to American literature. One hundred and eighty-two volumes have been purchased and additions will be made from time to time.

SCIENTIFIC COLLECTIONS.

These are extensive and valuable, and are rapidly increasing from year to year by gifts from societies and individual donors, and by special appropriations in addition to the fees for registration and matriculation.

Among the most valuable of the collections may be mentioned the extensive Herbarium, collected by Prof. Thomas C. Porter during forty years of enthusiastic labor; it is especially rich in North America plants and is believed to contain the most complete Flora of Pennsylvania in existence and the series of Ward's celebrated casts, illustrating Geology and Palæontology.

The apparatus in the Department of Physics and Applied Mechanics, the instruments used in the Departments of Astronomy and Engineering, and the scientific equipment of the numerous and extensive laboratories, meet the demands of advanced instruction in these departments; a special feature, however, is the series of nine hundred Wall Charts, executed at the College by Gustave Garnier, under the direction of the Professors in the Departments of Astronomy, Chemistry, Physics and Applied Mechanics, Metallurgy, and Natural History. There are valuable models in Machine Drawing, Stone Cutting, Crystallography, and Architecture.

COLLEGE SOCIETIES.

LITERARY SOCIETIES.

The *Washington* and *Franklin* Societies were organized early in the history of the College and are conducted by the undergraduates. Both Societies have well-furnished apartments in Pardee Hall, and valuable libraries. They meet every Wednesday evening for literary exercises, consisting of orations, essays, and debates. A generous rivalry for College honors exists between them, and each year representatives of the two societies from the Junior Class engage in a public contest in oratory. On the day before Commencement the

societies hold reunion meetings in their halls. These societies are an important part of College life and work, and *all the students are strongly advised to join them.*

BRAINERD EVANGELICAL SOCIETY.

The *Brainerd Evangelical Society*, as a society of inquiry, meets each Thursday evening and on the first Friday of each month in the interest of missions, and for the promotion of Christian effort. Its public anniversary is held on Sabbath evening of Commencement week, at which time a sermon is preached usually by some former member of the Society. In 1905 the preacher was Rev. John Balcom Shaw, D. D., '85, of Chicago.

BIOLOGICAL SOCIETY.

The *Biological Society* is for the purpose of making its members intelligent concerning the important biological questions of the day, enabling them to appreciate the value of research in nature. The membership consists of those students of the three upper classes who are either prospective or present members of the classes in Biology, and of such graduate students as are interested in the laws of life comprehended through the Natural History Sciences.

CHEMICAL CLUB.

The *Chemical Club* meets every Thursday at seven o'clock p. m., for reading and discussing papers contained in the current chemical magazines, and to listen to lectures from visiting chemists. During 1905-06 the Club listened to lectures from Dr. W. A. Noyes, Dr. H. W. Wiley and Professor Hart.

EXPENSES.

The tuition is \$100 per annum in all departments. Sons of ministers of the Presbyterian Church and candidates for its ministry receive free tuition in the Classical Course, and are charged one-half tuition in the Technical courses.

The other College charges are as follows:

General Expenses.....	\$8 00	a term.
Library and Reading-room.....	5 00	"
Gymnasium	2 00	"

The annual College charges are, therefore, for those who pay tuition in full, \$145.

Entrance Fees.—Each student pays \$5 when he is registered for examination on entering College, and \$10 when he is matriculated, thirty days afterwards. These fees are appropriated to the Library Fund and to the increase of the scientific collections and apparatus. No fees are charged for diplomas.

Laboratories.—Apparatus for the use of students in the Chemical Laboratories will be furnished and charged in their account, and the charge canceled for that returned in good condition. Chemicals and all other materials will be charged according to the average cost. A deposit sufficient to meet these expenses is made on entering the Laboratories. Members of the Classical Department are admitted to all the privileges of the Laboratories while studying General Chemistry, and, for the present, without charge for the aid of the professor in attendance; each student will, however, pay for chemicals which he uses, and for any apparatus which he may break or injure. In the Physical

Laboratory a fixed charge of \$5 per term is made for supplies and the use of apparatus.

Scholarships.—The endowed scholarships providing free tuition in the Classical Course will hold good for the Latin Scientific Course, but students in the other courses of the Pardee Scientific Department are required to pay one-half of the regular tuition fee in addition to the scholarship.

Aid is also given to young men of ability and good moral character who are dependent on their own efforts for their education. The amount will depend on the necessities of the applicant, but in no case will exceed the amount of the tuition fees in the Classical and Latin Scientific Courses, or one-half the tuition fees in the other Technical Courses. Application for such aid should be made to the President. No aid is granted to students pursuing special or incomplete courses of study.

BOARD, ROOMS, WASHING.

In all cases the place of boarding must be approved by the Faculty. The price of table board in clubs managed by the students at present averages from \$3 to \$3.50 per week. Board, including furnished room, in private families, is from \$4.50 to \$6 per week. Washing costs 40 cents per dozen pieces.

Unfurnished rooms in the College buildings rent for \$5 to \$30 a term (average \$15.88); unfurnished rooms adjacent to the College premises for \$12 to \$16 a term, or furnished rooms for \$15 to \$30 a term.

Students are expected to room in the College dormitories unless they receive permission to room elsewhere.

If they do not occupy College rooms, they are subject to an assessment to meet the loss to the College for rooms left vacant. The reason for this rule is that the funds of the College have been invested in the dormitories in order to secure cheap and convenient lodgings for the students, and it is to the advantage of all that the buildings should be occupied, the income from the investment being essential to the work of the College, and the students being protected against exorbitant rents.

Information in regard to the selection of rooms can be had from Professor Moore, Inspector of College buildings, the buildings being open for inspection during each term, and three days preceding the first day of each term. Rooms are assigned only to students who have been admitted to College, or who present full certificates from authorized schools, in the order of their application.

The rules of the Board of Trustees require that all College bills shall be paid in advance. For the convenience of the students it is arranged that payments of the bills shall be made by the Seniors on the first Thursday of each term, by the Juniors on the first Friday, by the Sophomores on the first Saturday, and by the Freshmen on the first Monday. No student is regarded as regularly enrolled for any term until his bill is paid. He may be dropped from the roll for neglect of his bill at any time upon notice from the Treasurer to the Faculty.

Where it is impossible for a student to pay his bill on the day it is due, the Prudential Committee has power to extend the payment of the bill for not more than thirty days, provided that a written request is filed with

the Treasurer *on the day the bill is due*, stating a satisfactory reason for the extension. A penalty of 10 per cent. will be added to every bill remaining unpaid after the expiration of thirty days, and no student whose bill is unpaid shall be permitted to take the term examinations. Those desiring the bill to be sent home, must call at the Treasurer's office during the first week of the term, acquaint themselves with the items of the bill, make the request that it be sent and give the address to which it is to be sent.

The care and regulation of the dormitories are under the direction and management of a Board of House Representatives, elected by the students. House rules are enacted and enforced by the Board. The Parietal Committee, composed of the Inspector of Buildings and Officers of Inspection who reside in the dormitories. acts as a court of appeal.

House Representatives.—J. H. Gaskins, 31 South; P. Jones, 65 Blair; James Darsie, 75 Knox; J. D. Shilling, 80 Newkirk; J. W. McIntire, 92 McKeen; E. W. Bachman, 128 Martien; O. L. Hellman, 131 Fayerweather; R. L. Smith, 147 Powell; Bliss Muir, 176 East.

Fuel Deposit.—The Treasurer also, on behalf of the Committee of Students, collects with the College bills \$6 at the beginning of the first and second terms for fuel. The unexpended balance, if any, is refunded by the Committee at the close of the year. Of late the average cost for heating has been \$12.68 for each student in the steam-heated dormitories, and \$8.61 in the buildings heated by warm-air furnaces or stoves. The steam-heated dormitories are also lighted by elec-

tricity, the cost of which to each of the occupants is about \$6 a year.

A deposit of \$1 is also made at the beginning of each term to pay for public damages, the unexpended balance of which is returned to the student at the end of the year.

Annual Expenses.—Some money for books and other incidental expenses will be needed; but, with close economy, the total annual expenses—exclusive of tuition, clothing, and traveling expenses—need not exceed \$255, as will be seen from the following summary:

	Liberal	Moderate	Minimum
General College Expenses.....	\$24 00	\$24 00	24 00
Charge for College Reading-rooms, Gymnasium, etc.....	21 00	21 00	21 00
Board, 36 weeks, at \$3.00 to \$4.00.	144 00	117 00	108 00
Rent of College-room, \$15 to \$90..	90 00	36 00	15 00
Light and Fuel.....	18 00	15 00	12 00
Washing	25 00	16 00	9 00
Tuition	100 00	100 00	100 00
Books and stationery.....	38 00	21 00	16 00
	\$460 00	\$350 00	\$305 00
Deduct for Sons of Ministers <i>et al.</i> , in Classical Course.....			100 00
			\$205 00
Deduct for same in other courses..			\$50 00
			\$255 00
Lowest charges for nec- } Classical. essary expenses.... } Technical			\$205 00
			255 00

Laboratory fees and damage assessment, which vary in amount, must also be added, while the personal expenses for

clothing, etc., must be estimated according to individual experience. The first year will be made more expensive by the fees for registration and matriculation, and furnishings for room; \$300 will therefore be a small allowance.

Parents and guardians at a distance may deposit funds with some member of the Faculty, who will pay particular attention to the pecuniary concerns of the student, settling his bills, and transmitting an account of the expenditure, for which services he will charge a commission. It is strongly recommended that parents furnish their sons with little beyond what will meet their necessary expenses.

BEQUESTS AND DEVISES.

Each State has special statutory regulations in regard to wills, and it is most important that all testamentary papers be signed, witnessed, and executed in all other respects according to the laws of the State in which the testator resides. In all cases, however, the name of the corporation must be accurately given, as in the following forms:

I give, devise, and bequeath to "The Trustees of Lafayette College," in Easton, Pennsylvania, their successors and assigns forever, the sum of.....dollars, to be invested by said corporation in good real estate security, and the interest accruing therefrom to be applied to the support of the Professors in said College.

I give, devise, and bequeath a certain lot, situated, etc., to "The Trustees of Lafayette College," in Easton, Pennsylvania, and to their successors and assigns forever, for the uses and purposes of said College, according to the provisions of its charter.

PRIZES.

The following prizes are offered annually:

THE FRANCIS A. MARCH PRIZE IN ENGLISH.

A prize of thirty dollars in books was given from 1862 to 1881 by the late Rev. William C. Fowler, LL.D., of Durham, Connecticut, and since 1881 has been continued by Henry A. Potter, M. S., Class of '77, of New York, under the title of "The Francis A. March Prize," upon the following conditions:

"A committee of at least three shall be chosen by the Faculty to determine which student of the Senior Class has made the greatest proficiency in English Philology.

"The decision of the committee is to be made after attending an examination in some English classic, conducted by the Professor in English, and after reading essays written by the several members of the class, which shall contain a discussion of the language of some English classic."

The subject in 1906 will be the works of Benjamin Franklin.

THE ASTRONOMICAL PRIZE.

A prize of thirty dollars in gold is awarded to the student making the greatest progress in the study of Astronomy in the Senior year.

MATHEMATICAL PRIZES.

Two prizes of the value of twenty dollars each are offered in the Department of Mathematics to those students of the Junior Class, one in the Classical and general courses of the Scientific Department, and one in the Technical Departments, who shall have exhibited during the first two years of the course the greatest proficiency in the study of Mathematics.

These prizes were founded, as was the astronomical prize above mentioned, in 1867, by Professor Traill Green, M. D., LL. D.

THE LOUNSBURY PRIZE IN CHAUCER.

A prize, consisting of books, is given to that student of the Sophomore Class who shall present the best essay upon some one of the works of Chaucer. This prize was given in 1896 by Thomas R. Lounsbury, Professor of English at Yale University, and will be continued by friends of the College as the Lounsbury Prize in Chaucer.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE.

A prize, consisting of books of the Early English Text Society, of London, is given to that student of the Junior Class who shall at the close of the Junior year pass the best examination in "English before Chaucer." The examination is based upon selected texts announced from year to year, which in 1906 will be from Caedmon.

This prize was founded in 1871.

THE NEW SHAKSPERE SOCIETY'S PRIZE.

A prize of publications of the "New Shakspeare Society," of London, is awarded to that member of the Junior Class who passes the best general examination upon Shakspeare, his works, life, character, etc.

THE CLASS OF '83 PRIZE.

A prize of the value of fifteen dollars is annually awarded to that member of the Sophomore Class who shall have attained the highest standing in his division of the class in Trench on The Study of Words.

This prize was founded by the Class of 1883 at their graduation.

COLEMAN BIBLICAL PRIZES.

Three prizes, each of the value of twenty dollars, are awarded to those students of the Freshman Class who have attained the highest standing in the several divisions of Biblical study in that year.

These prizes were founded by the Rev. Lyman Coleman, D. D., in 1880.

PRIZES IN ORATORY.

The Washington and Franklin Literary Societies appropriate one hundred dollars a year for prizes in oratory. Four contestants are chosen from each Hall to take part in the Junior Oratorical Contest, which is held in May. In the presence of a public audience three Judges, approved by the Faculty, hear the speakers and award the prizes. Their decision is based on the merits of the performances as to originality and force, with reference both to composition and delivery. The first prize is fifty dollars, the second prize thirty dollars, and the third prize twenty dollars.

PRIZES IN DEBATE.

Three prizes, of the total value of fifty dollars, are awarded to the successful competitors in a Senior contest in debate, held on Washington's Birthday in each year, between three contestants from each of the literary societies, chosen by a competitive debate in each society prior to December 1st in the previous year. The amount of the prizes and the conditions of the award are similar to the Junior oratorical contest. The first of these contests was held in 1894. The subject for debate in 1906 is:

"RESOLVED, That the present party organization is incompatible with good government in city, state, and nation."

CIVIL ENGINEERING PRIZE.

A prize of the value of fifty dollars, the gift of Carroll Phillips Bassett, C. E., Ph. D., of the Class of 1883, is annually awarded to that member of the graduating class who presents the best graduating thesis and attains the highest standard of scholarship in the Civil Engineering course.

THE PARK PRIZE IN LATIN.

A prize of fifteen dollars for the Latin Department has recently been founded by Mr. Samuel R. Park, A. M., '84. In 1906 it will be awarded, on the work of the second and third terms Freshman Class, for excellence in Horace.

HISTORICAL ESSAY PRIZE.

A prize, consisting of a copy of his work, "*The Marquis de Lafayette in the American Revolution*," is given annually by Charlemagne Tower, Jr., LL. D., of Philadelphia, United States Minister to Germany, to that member of the Senior Class who shall, on or before the first day of October, present the best essay on some subject connected with the relations of *France and the United States*. The essays must not exceed three thousand words in length. The subject for the year 1906 is: "*Franklin in France*."

THE CHEMICAL ESSAY PRIZES.

A prize of five dollars in books is awarded each term to that member of the Junior or Senior Class who shall present the best term theme on some Chemical subject.

THE GILBERT PRIZE IN OLD ENGLISH.

By the will of Howard Worcester Gilbert, who died in Chester County, March 5th, 1895, a bequest was left to the College, with the provision that a gold medal of the value of forty dollars should be awarded every two years to the student writing the best essay on the Old English Language and Literature, beginning with Beowulf, in the earliest Anglo-Saxon period, and extending down to the year 1070. Should the competitors be of equal merit, preference is to be given to residents of Pennsylvania.

The medal is an inch and three-fourths broad, three-sixteenths of an inch thick, and contains on its face a relief portrait of King Alfred, with the date 871-901, surmounted by the Anglo-Saxon phrase, "Næs he gold hwæte." The reverse shows a garland encircled with the legend, "Howard Worcester Gilbert Old English Prize. Founded 1895." Space is left for the name of the recipient.

This prize will be awarded at the Commencement of 1906. It is open to competition of students of Anglo-Saxon in the graduate courses of 1906-07 and 1908-09. The essay must be handed in by May 1st, 1906.

'85 PRIZE IN PHYSICS.

The Class of 1885 founded a prize in 1897 in the sum of \$500, the annual income of which is given to that member of the Junior Class who attains the highest rank in the studies of Mechanics and Physics.

THE BLOOMBERGH PRIZE.

The Class of 1888 at its Decennial Reunion subscribed the sum of \$500, the annual income of which is awarded to that member of the Junior Class who shall attain the greatest proficiency in the study of the French and German languages and their literatures.

THE B. F. BARGE GOLD MEDAL.

A prize of a gold medal of the value of \$100 was founded by Benjamin F. Barge, Esq., of Mauch Chunk, Pa., to be awarded to that member of the Senior Class who shall deliver the best oration in an annual contest to be held on Memorial Day, May 30th. The contestants, not more than six in number, are to be chosen by a committee of the Faculty from those members of the Senior Class, who shall hand in orations on or before May 1st upon topics assigned by the committee not later than March 15th of each year.

BARGE MATHEMATICAL PRIZES.

By the bequest of the late Benjamin F. Barge, Esq., of Mauch Chunk, three prizes have been established for excellence in mathematical studies. These prizes will be awarded for the first time in June, 1905, to members of the Sophomore Class for excellence in the solution of original problems.

THE R. B. YOUNGMAN GREEK PRIZE.

The Class of 1884, at its vigintennial reunion, subscribed the sum of \$500, the income of which is to be awarded to that member of the Sophomore Class who shall attain the greatest proficiency in Greek.

NOTE.—In all cases where a prize is awarded to an essay or oration the successful competitor must hand to the proper authority two typewritten copies of his production before receiving the prize, if he is requested to do so.

RECENT ADDITIONS.

THE DEPARTMENT OF MINING ENGINEERING AND GRAPHICS has received a sample board of mine ropes from John A. Roebling's Sons Co., Trenton, N. J.; four boxes miners safety squibs, Prof. H. Eckfeldt, Lehigh University; complete sectional model of mine pump, A. S. Cameron Steam Pump Co., New York; two mine feeder wire insulators, Olin Brass Co., Mansfield, Ohio; rock drill with tripod &c., Rand Drill Co., N. Y.; model of third rail system, Goodman M'f'g. Co, Chicago, Ill.; mine car coupling, Smith & Carpenter, Peoria, Ill.; sample board mine ropes, Broderick & Bascom, St. Louis, Mo.; section spiral riveted pipe with joint, American Spiral Riveted Pipe Co., Chicago, Ill.; two mine car replacers, The Alexander Pressed Steel Car Replacer Co., Scranton; model of stamp mill cam, Chrome Steel Co., Chrome, N. J.; metallic cap crimper, Metallic Cap M'f'g. Co., N. Y.; sample set coal screens, Hendrick M'f'g. Co., Carbondale; sample set wire cloth ore screens, Michigan Wire Cloth Co., Detroit, Mich.; Smiths plumb bob adjuster, William Ainsworth, Denver, Col.; sample board of mining screens, W. S. Taylor Co., Cleveland, Ohio.; framed photographs, Goyne Steam Pump Works and American Concentrator Co.; mine car wheels and axle, Lobdell Car Wheel Co., Wilmington, Del; blue prints, J. M. Gilland, '05, T. P. Jennings, '04 and C. E. Stryker, '06.

THE DEPARTMENT OF CIVIL ENGINEERING has received two water meters from the Hersey Meter Co., Boston, Mass.; two water meters, Worthington Meter Co., New York, N. Y.; sample section old wooden water pipe of the Philadelphia Water Supply, George Rice.

THE DEPARTMENT OF CHEMISTRY AND METALLURGY has received gifts from The Baker & Adamson Chemical Co.; Henry E. Wysor; Farbenfabriken of Elberfeld Co.; Frank Firmstone; Estate of Henry W. Oliver; J. Hunt Wilson.

THE DEPARTMENT OF ELECTRICAL ENGINEERING has received valuable favors from The Weston Electrical Instrument Co., Newark, N. J.

DEGREES CONFERRED.

HONORARY DEGREES.

June 21st, 1905.

DOCTOR OF DIVINITY.—Rev. W. T. L. Kieffer, Milton, Pa.; Rev. Ford C. Ottman, '83, Stamford, Conn; Rev. John F. Pollock, '71, Allentown, Pa.

MASTER OF ARTS.—William E. Geil, '90, Doylestown.

DOCTOR OF LAWS.—Hon. Edwin Warfield, Governor of Maryland; Henry M. Howe, Columbia University, New York, N. Y.; William W. Smith, '80, President of Coe College, Iowa.

October 25th, 1905.

DOCTOR OF LAWS.—Henry S. Drinker, President of Lehigh University.

MASTER OF ARTS.—Archibald D. Russell, Princeton, N. J.

DEGREES IN COURSE.

June 21st, 1905.

BACHELOR OF ARTS.—J. G. Atwood, N. Y.; W. V. Berg, N. Y.; R. J. Boyd, Pa.; R. Brown, Jr., Pa.; E. I. Campbell, Pa.; N. S. Conover, N. J.; W. T. Cook, Pa.; H. C. Edgar, Pa.; E. F. Farquhar, Pa.; F. Z. Hartzell, Pa.; H. R. Hoffman, Pa.; W. M. Keely, Pa.; W. N. Keith, Pa.; C. A. S. Kemper, Ind.; W. H. Kirkpatrick, Pa.; F. G. Kolb, Brazil; T. D. Luccock, Ill.; H. McKeen, Jr., Pa.; J. L. Nesbitt, Md.; D. W. Phillips, Pa.; W. W. Ramsey, Pa.; H. A. Seipt, Pa.; J. E. Shewell, N. J.; J. F. Shipman, Pa.; F. W. Stewart, Jr., Pa.; A. D. Thomas, Pa.; J. B. Wiley, Md.; Total, 27.

BACHELOR OF PHILOSOPHY.—E. P. Case, N. Y.; N. D. Case, N. Y.; C. M. Coxe, Pa.; J. T. English, N. J.; G. H. Fickes, Pa.; R. T. Fox, Pa.; W. B. Guy, D. C.; L. C. Hawk, N. J.; G. Ho-worth, Pa.; T. D. Irwin, Pa.; J. L. Jones, Pa.; R. O. Klotz, Pa.; A. M. Lane, Pa.; D. E. Latham, Pa.; C. K. Miller, N. J.; H. B. Parsons, Pa.; W. L. Peake, Pa.; B. Rabbitts, O.; C. Ross, Pa.; W. G. Showman, Pa.; G. A. Sigman, Pa.; J. Sigman, Pa.; A. L. Spencer, Jr., Pa.; L. P. Stark, Pa.; F. C. Thompson, Pa.; C. N. Ulrich, Pa.; P. F. Williams, O.; E. H. McClelland, '03. Total, 28.

BACHELOR OF SCIENCE.—T. J. McCabe, Pa. Total, 1.

BACHELOR OF SCIENCE (in Chemistry).—E. D. Chase, Pa.; W. S. Creveling, N. J.; H. B. Greensted, Pa.; J. K. Montgomery, Pa.; J. Morrison, Pa.; M. J. Scammell, N. J.; S. P. Turnbach, Pa.; G. A. Walter, Pa.; J. H. Wilson, Pa.; Total, 9.

CIVIL ENGINEER.—J. H. Cooper, Pa.; C. R. Hopper, N. J.; R. S. Hubley, Pa.; O. L. Morgenstern, Pa.; C. O. Rasely, Pa.; E. C. Smith, Pa.; L. E. Wilt, Pa. Total, 7.

MINING ENGINEER.—P. D. Cook, Pa.; J. M. Gilland, Pa.; W. W. Peacock, Pa.; G. E. Fetters, '02. Total, 4.

ELECTRICAL ENGINEER.—A. Brown, Pa.; W. H. Cline, N. J.; J. M. Cooper, Pa.; T. F. Eynon, Pa.; J. F. Farquhar, Pa.; R. H. Kudlich, Pa.; M. R. H. Levin, N. J.; D. C. Pomeroy, Pa.; H. Reese, Pa.; W. J. Schwartz, Pa.; G. F. Smith, Pa. Total, 11.

MASTER OF ARTS.—C. A. Bergstresser, 1903; H. E. Craighead, 1887; T. B. Shannon, 1898; H. H. Reichard, 1901 (Oct. 25, 1905.)

Total—First Degree, 87; Master's Degree, 4.

From the opening of the College to the present time, 5342 students have been enrolled; of these 2161 have received the First Degree.

COMMENCEMENT DISTINCTIONS, 1905.

HONORS.—William Sloan Creveling, Bloomsburg, N. J.; John Lewis Jones, Bangor; David Wendell Phillips, Scranton; Alfred David Thomas, Hazleton.

ORATIONS.—John Griffith Atwood, Albany, N. Y.; Robert Brown, Jr., Stroudsburg; Edwin Irvin Campbell, Easton; Edwin Dubois Chase, Easton; Nathan Stiger Conover, Jr., Clinton, N. J.; Charles Matthew Coxe, Wilkes Barre; Henry Copp Edgar, Easton; Edwin Franklin Farquhar, Bethlehem; Christian Arthur Schultz Kemper, Indianapolis, Ind.; William Huntington Kirkpatrick, Easton; Clarence Oscar Rasely, East Bangor; Carmon Ross, Pen Argyl; Earle Clifford Smith, Philadelphia; Frank Wells Stewart, Easton; Franklin Clark Thompson, Easton.

PRIZES AWARDED.

SENIOR PRIZEMEN.

THE FRANCIS A. MARCH PHILOLOGICAL PRIZE: Alfred D. Thomas, Hazleton, Pa.

THE ASTRONOMICAL PRIZE: David W. Phillips, Scranton, Pa.

THE BASSETT PRIZE IN CIVIL ENGINEERING: Divided equally between Clarence O. Rasely, East Bangor and Earle C. Smith, Philadelphia.

SENIOR DEBATE:

QUESTION: *Resolved*, That Congress should make more stringent regulations in regard to the admission of alien immigrants to the United States and its possessions, extending the principle of the Chinese Exclusion Act and embodying the requisites of American citizenship.

SPEAKERS.

Washington Hall,

Franklin Hall.

George H. Fickes, <i>negative</i> ,	William V. Berg, <i>affirmative</i> .
Dudley E. Latham, <i>affirmative</i> ,	Christian A. S. Kemper, <i>negative</i> .
Carmon Ross, <i>negative</i> ,	Edward F. Farquhar, <i>affirmative</i>

FIRST PRIZE: Dudley E. Latham, Weatherly, Pa.

SECOND PRIZE: William V. Berg, Ellenville, N. Y.

THIRD PRIZE: Christian A. S. Kemper, Indianapolis, Ind.

B. F. BARGE GOLD MEDAL, \$100, George Herman Fickes, Mt. Rock, Pa.

THE CHEMICAL ESSAY PRIZES (Junior or Senior).

SECOND TERM: Henry B. Greensted '05, Scranton, Pa., and Frank H. Ronk, '06, West Chester, Pa.

PRIZE SCHOLARSHIP IN THE MEDICO-CHIRURGICAL COLLEGE: Christian A. S. Kemper, Indianapolis, Ind.

JUNIOR PRIZEMEN.

THE MATHEMATICAL PRIZES:

CLASSICAL DEPARTMENT: Frederick E. Stocktkon, Pacific Grove, Cal.

TECHNICAL DEPARTMENT: Charles E. Stryker, Phillipsburg, N. J.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE: Frederick E. Stockton, Pacific Grove, Cal.

THE NEW SHAKSPERE SOCIETY'S PRIZE: Frederick E. Stockton, Pacific Grove, Cal.

JUNIOR ORATORICAL PRIZES, Contest May 15th, 1905.

SPEAKERS.

Franklin Hall.

Edward I. Brown,
Erwin W. Grove,
Frederick E. Stockton,

Washington Hall.

William S. Lare,
Philip R. Phillips,
Edmund G. Wilson.

FIRST PRIZE: Fifty dollars, Edward I. Brown, Boonton, N. J.

SECOND PRIZE: Thirty dollars, Frederick E. Stockton, Pacific Grove, Cal.

THIRD PRIZE: Twenty dollars, Erwin W. Grove, Ringoes, N. J.

THE CLASS OF '85 PRIZE IN PHYSICS: Charles E. Stryker, Phillipsburg, N. J.

THE BLOOMBERGH PRIZE IN MODERN LANGUAGES: William U. More, Bridgeton, N. J. and Hamilton R. Smith, Media, Pa.

SOPHOMORE PRIZEMEN.

THE LOUNSBURY PRIZE IN CHAUCER: Oscar W. Ackerman, Ackermansville, Pa.

CLASS OF '83 ENGLISH PRIZE: Frederick S. Welsh, Bloomsburg, N. J.; O. W. Ackerman, Ackermansville, Pa.

THE BARGE MATHEMATICAL PRIZES: Chester T. Kimble, Port Deposit, Md.; Charles E. St. John, Scranton; Jacob D. Lewis, Elmira, N. Y.

FRESHMEN PRIZEMEN.

LYMAN COLEMAN BIBLICAL PRIZES.

SECTION A: Howard B. Bartolet, Lehighton, Pa., and David R. Evans, Plymouth.

SECTION B: Clarence D. Long, Traymore, Pa., and William T. Miller, Easton, Pa.

SECTION C: Clinton J. Ruch, Lower Saucon, Pa.

THE PARK PRIZE IN LATIN: Clinton J. Ruch, Lower Saucon, Pa.

CLASS MONITORS.

Appointed for general excellence in study:

SENIOR CLASS: F. E. Stockton.

JUNIOR CLASS: C. E. St. John.

SOPHOMORE CLASS: C. J. Ruch.

FRESHMAN CLASS: D. E. Edwards and C. F. Schoen.

Theses presented by Candidates for Degrees in the Technical Courses of the Pardee Scientific Department.

June 21st, 1905.

1. Garbage Disposal for Easton.
EARLE CLIFFORD SMITH, Philadelphia.
CLARENCE OSCAR RASELY, East Bangor.
2. Purification of Easton's Water Supply.
LEO EARL WILT, Towanda.
3. New Method of Testing Cement.
OSCAR LEWIS MORGENSTERN, Easton.
CLARENCE RICKER HOPPER, Newark, N. J.
4. Relative Cost of Elevated Tanks and Standpipes.
ROSS STROMINGER HUBLEY, Harrisburg.
JOHN HORN COOPER, Easton.
5. Winding at the Hazleton Shaft Colliery of the Lehigh Valley Coal Company.
PAUL DARWIN COOK, Merryall.
6. Electric Equipment at the Mt. Lookout Colliery, Pittston, Pa.
GEORGE ELWOOD FETTERS, Easton.
7. The Water Hoists of the Pennsylvania Coal and Iron Company's Collieries at Shamokin, Pa.
JAMES MCDOWELL GILLAND, Shamokin.
8. Underground Haulage at the St. Clair Colliery, St. Clair, Pa.
WALTER WINFIELD PEACOCK, Mt. Airy.
9. Test of Commercial Wattmeters for Alternating Current Circuits.
ALBERT BROWN, Hazleton.
THOMAS FRANKLIN EYNON, Scranton.

10. Study of one Kw. General Electric Transformer.
WILLIAM HAMLIN CLINE, Phillipsburg, N. J.
JOHN MCGILL COOPER, West Philadelphia.
11. Application of the Oscillograph to Alternating Current Problems.
JOHN FREDERICK FARQUHAR, Bethlehem.
12. Design and Construction of Apparatus for the Rapid Determination of Alternating Current Curves.
RUDOLPH HEINRICH KUDLICH, Drifton.
MORRIS ROBERT HENRY LEVIN, Beverly, N. J.
13. High Frequency and High Potential Currents.
DARWIN CRAWFORD POMEROY, Port Royal.
HARRY REESE, Wilkes-Barre.
14. Effect of Iron Losses upon the Wave Form of an Alternating Current.
WILLIAM JOHN SCHWARTZ, Hazleton.
GUSTAVE FREDERICK SMITH, Honesdale.
15. The Salts of Meta nitro para sulfo benzoic Acid.
Calcium and Magnesium Salts.
JOHN KHAUSS MONTGOMERY, Hazleton.
Cobalt and Strontium Salts.
JOSEPH MORRISON, Easton.
Potassium and Sodium Salts.
HENRY B. GREENSTED, Scranton.
Lead, Manganese and Zinc Salts.
MATTHEW JOHNSTON SCAMMELL, Trenton, N. J.
16. The Salts of Para nitro ortho sulfo benzoic Acid.
WILLIAM SLOAN CREVELING, Bloomsbury, N. J.
17. The Salts of Meta sulfo nitro benzoic Acid.
EDWARD DUBOIS CHASE, Easton.
18. The Constitution of Talc.
GEORGE ALFRED WALTER, Scranton.
19. Some Non Aqueous Concentration Cells.
JOHN HUNT WILSON, Easton.
20. The Purification of Titanic Acid.
SARGEANT PRENTISS TURNBACH, Hazleton.

THE ALUMNI ASSOCIATION.

The Alumni Association is composed of Graduates of the College and such former students as left College before graduation, in good standing, as may be elected. The annual meeting is held on Tuesday preceding Commencement Day.

The Association has the privilege of choosing six members of the Board of Trustees, who hold office for six years. In June, 1904, William E. Baker, C. E., '77, of New York City, and Henry W. Cattell, M. D., '83, of Philadelphia, were chosen. In the spring of 1906 two more will be voted for.

The Executive Committee is as follows: McCluney Radcliffe, M. D., '77, Chairman, Philadelphia; Casper Dull, '77, Harrisburg; James W. Fox, '88, Easton; W. J. Trembath, '85, Wilkes-Barre; Stephen Stone, '95, Pittsburg.

It is desirable to keep up the full record, so long maintained, of the residences, occupations, literary efforts, and public services of the alumni and former students of the College.

Information is solicited in regard to these points, and also in reference to matters appropriate to the obituary record, which is annually prepared for the Alumni Association.

Each Alumnus is asked to send his personal record, carefully revised to date, to the Secretary before May 1st. 1906.

ALUMNI ASSOCIATION OF LAFAYETTE.

HORACE HEYDT, '84, Mauch Chunk.....*President.*
 FRED R. DRAKE, '86, Easton.....*Vice-President.*
 REV. J. F. STONECIPHER, D. D., '74, Easton *Sec. and Treasurer.*

LOCAL ASSOCIATIONS.

THE LAFAYETTE ALUMNI ASSOCIATION OF NORTHEASTERN PENNSYLVANIA.

GEORGE W. PHILLIPS, '78, Scranton.....*President.*
 W. J. WILLIAMS, '02, Wilkes-Barre.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF PHILADELPHIA AND VICINITY.

JOHN E. FOX, '85, Harrisburg.....*President.*
 CHAS. B. ADAMSON, '77, 730 Market Street.....*Secretary*

THE LAFAYETTE ALUMNI ASSOCIATION OF
NEW YORK AND VICINITY.

JAMES GAYLEY, '76, 71 Broadway, New York.....*President.*

LEWIS H. ALLEN, '94, 35 Nassau Street, New York..*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
THE WEST BRANCH.

FRED H. PAYNE, '88, Williamsport.....*President.*

R. FLEMING ALLEN, '90, Williamsport.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
CENTRAL PENNSYLVANIA.

REV. D. K. FREEMAN, D. D., '56, Huntingdon.....*President.*

REV. A. N. HAGERTY, '81, Carlisle.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
WESTERN PENNSYLVANIA.

SIMON CAMERON LONG, '77, 43d Street, Pittsburg..*President.*

JOHN F. TIM, '01, 511 Park Bldg., Pittsburg.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
MARYLAND.

ROBERT H. SMITH, '67, 53 St. Paul Street, Baltimore..*President.*

PEARCE KINTZING, M. D., '81, Baltimore.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
CHICAGO AND VICINITY.

A. B. CAMP, '84, Chicago.....*President.*

L. F. GATES, '97, 378 Wabash Ave., Chicago.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
THE NORTHWEST.

REV. GEO. C. POLLOCK, D. D., '61, Litchfield, Minn..*President.*

HON. JAMES T. HALE, '77, Duluth, Minn.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF
WASHINGTON, D. C.

JAMES F. R. APPLEBY, M. D., '64, Georgetown.....*President.*
SNOWDEN ASHFORD, '88, 918 Farragut Square.....*Secretary.*

JUNIOR ALUMNI ASSOCIATION OF EASTON.

C. F. OLDT, '00, Easton.....*President.*
H. B. MOON, '99.....*Secretary.*

STUDENTS.

GRADUATE STUDENTS

S. B. Gilhuly, A. M., N. J. . . .	History and English Literature,	Lafayette, '86.
J. B. Hench, A. M., Pa.	Latin	" '83.
H. C. Mohn, A. M., Pa.	Philosophy and Pedagogy,	Lafayette '83.
J. F. L. Raschen, A. B., B. D., Pa.	Philology and Ger-	
	manic Languages. Wallace, '98.	
H. H. Reichard, A. B., Pa. . . .	French and German, Lafayette '01	
A. Roberts, Ph. B., M. S., Pa.	History and Politi-	
	cal Science.	" '99.
C. F. F. Garis, Ph. B., Pa. . . .	Mathematics and	
	German	Lafayette, '03.

GRADUATES 7

SENIOR CLASS, 1906.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Joseph Grubb Alexander	C. E. . .	Scranton	101 McK.
Eugene A. Anders	L.	Norristown	25 So.
George Crowell Andrews †	C. E. . .	Buffalo, N. Y.	T. D. Chi.
Earnest Arthur Aston	Ch. . . .	Wilkes-Barre	68 B.
Chester Reese Atkinson	E. M. . .	Rising Sun, Md.	81 N.
Roy William Baker	L.	Ogden, Utah	146 P.
Raymond Grey Barr	E. E. . .	Pittsburgh	127 M.
Herman Ario Briggs	C.	Nescopeck	31 S.
Edward Ingersoll Brown	L.	Boonton, N. J.	Brd.
John Whitney Colliton	C. E. . .	Newfane, N. Y.	82 N.
Russell Dunbar Dietrich †	C. E. . .	Easton	411 High St.
Francis Shunk Downs	L.	Dover, Del.	D. K. E.
Francis Arman English	L.	Elizabeth, N. J.	108 McK.
Warren Harold Fee	L.	Bombay, India	114 McK.
Henry A. Picking Fischer	C.	Easton	63 N. 4th St.
William Trumbower Foster L. . . .		Phillipsburg, N. J.,	
		40 Fairview Heights.	
Augustus Henry Fretz, Ph. B. C. E. . . .		Doylestown, N.	Third St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
John Henry Gaskins	L.	Danville	31 S.
Harrison Van S. Goodrich	E. E.	Brooklyn, N. Y.	121 McK.
Erwin Willard Grove	L.	Ringoes, N. J.	37 S.
William Cummings Hall	C. E.	Cape May City, N. J.	69 B.
Henry Kinsey Hauck†	Ch.	Easton, 1044 Northampton St.	
John Bernard Hawley	C. E.	Wilkes-Barre	35 S.
Ruger Wilson Hay	E. M.	Easton	14th St.
Reuben Harold Hellick	C. E.	Easton	510 Northampton.
Otto Ludwig Hellmann	C.	Waterbury, Conn.	138 F.
Robert Lewis Horner	C.	Emmitsburg, Md.	65 B.
Thomas Locke Hoskins	L.	West Chester	D. K. E.
Joshua Fletcher Hunter	C. E.	Wyncote	107 McK.
William Sloan Lare	L.	Flemington, N. J.	99 McK.
Ernest Clifford Laudenberger	E. E.	Freemansburg	135 F.
Alexander Wilson McCand- less†	L.	Pittsburgh	138 F.
Howard Haley McIntire†	Ch.	Bridgeton, N. J.	101 McK.
Joseph Ware McIntire†	Ch.	Bridgeton, N. J.	92 McK.
William Uhlinger More	L.	Bridgeton, N. J.	89 N.
Herbert Charles Moyer	E. E.	Easton	830 Wolf St.
Frank Amandus Neff	C.	Slatington	25 S.
Frank Milton Newbury†	E. E.	Tunkhannock	D. K. E.
Asher J. Odenwelder, Jr.	L.	Easton	47 S. 4th St.
Philip Roswell Phillips	C.	Scranton	94 McK.
Frank Elmer Reeder	L.	New Bloomfield	87 N.
James Fred Reid	Ch.	West Chester	131 M.
Solon Aaron Reinhard	C. E.	Kutztown	305 Cattell St.
John Herman Reinholdt	C. E.	Manning, Ia.	131 M.
Frank Hannaman Ronk	Ch.	West Chester	150 P.
William James Ruch, Jr.	E. E.	Pittsburgh	86 N.
Henry DeWitt Saylor	Ch.	Easton	202 S. 6th St.
Claude Francis Schaeffer	C.	Easton	626 Ferry St.
Alexander Brady Sharpe	C.	Chambersburg	D. K. E.
Thomas Alden Shields	C. E.	Hackettstown, N. J.	80 N.
William Weaver Shuster†	C. E.	Shamokin	D. K. E.
Francis Le Roy Smith	C. E.	Wellsboro	68 B.

NAME.	COURSE OF STUDY.	RESIDENCE,	ROOM.
Hamilton Ross Smith	C.	Media	70 B.
Jay Mark Smith	E. M.	Duluth, Minn.	113 McK.
Frank Xavier Soete	C. E.	Honesdale	150 P.
Frederick Eugene Stockton	C.	Wilkinsburg	Brd.
Charles Elmer Stryker	C. E.	Phillipsburg, N. J., 111 Summit Ave.	
Bascom Augustus Taylor	C. E.	Wyalusing	68 B.
Joseph John Thomas	C.	Hazleton	23 S.
Ralph Edward Thomas	C.	Phillipsburg, N. J.	23 S.
Fred Walter Uhler	E. M.	St. Peter, Minn.	30 S.
Jacob Peter Uhler	E. E.	Stockertown	30 S.
Sayre Pancoast Uhler	C.	Easton	133 Cattell St.
Otis Wack	C. E.	Lansdale	19 S.
Edmund Graham Wilson	C.	West Philadelphia,	O. Brd.
SENIORS			65.

JUNIOR CLASS, 1907.

NAME.	COURSE OF STUDY	RESIDENCE.	ROOM.
Thomas Hoskinson Acker	C. E.	Washington, D. C.	84 N.
Oscar Wilson Ackerman	L.	Ackermansville	Home.
James Patterson Alexander	E. E.	Hollidaysburg	105 McK.
William Clarke Alexander, Jr.	C.	Washington, D. C.	105 McK.
Charles Robbins Anderson†	C. E.	Bloomsbury, N. J.	T. D. Chi.
Frank Rockwood Bacon	C.	Bridgeton, N. J.	87 N.
John Barberey†	C. E.	Easton	216 Pine.
Robertson Treloar Barrett	C.	Katonah, N. Y.	D. K. E.
Walter J. Berry†	Ch.	Brooklyn, N. Y.	139 F.
Arthur Clifton Boyce	L.	Tuscola, Ill.	26 S.
John Gardner Clemson†	Ch.	Pittsburgh	73 K.
Edward Welles Coffin	C.	Easton	Prof. Coffin.
James Algernon Darsie†	C. E.	Pittsburgh	T. D. Chi.
Norman Jay Dicks	E. E.	West Chester	63 B.
Harold Edgar Diehl	C.	Easton, Lachenour Heights.	
Thomas Gordon Ditchett†	L.	Bangor	74 K.
Erastus Raymond Doud†	Ch.	Hazleton	T. D. Chi.
Walter Claude Dutot	C.	Stroudsburg	103 McK.
Walter French Evans†	E. M.	Beaver	T. D. Chi.
Mark Dee Ewell	C. E.	Wyoming, N. Y.	33 S.
Cladius James Fingar	C.	Germantown, N. Y.	47 S.
Edward Dietrich Flad	C. E.	Easton	802 Cattell St.
John Leon Freeman	C. E.	Norristown	97 McK.
Edwin Clark Gilland	C.	Shamokin	D. K. E.
Thomas Henry Gilland	L.	Greencastle	98 McK.
Robert Van Valzah Glover	C. E.	Mifflinburg	139 F.
David Walter Griffiths	L.	Wilkes-Barre	24 S.
John Andrew Hamilton†	C. E.	Mercer	90 N.
Joseph Henry Hand	C.	Wilkes-Barre	107 McK.
Willis Bixler Hawk	L.	Phillipsburg, N. J.	690 Main S.
Reginald Stanley Hemingway	C.	Bloomsburg	92 McK.
Frank Hancock Hennessy†	L.	Haworth, N. J.	69 B.
John Royden Hess	L.	Phillipsburg, N. J.	163 N. Main.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM
William Vicary Hetchie†	C. E.	Freedom	98 McK.
Paul Kingsley Holgate	L.	Scranton	115 McK.
Howard Clifford Hottel	Ch.	Trenton, N. J.	84 N.
Emerson Olds Houser	C.	Wilkes-Barre	133 M.
Ziba Raymond Howell	L.	Centremoreland	22 S.
Joseph Simeon Illick†	C.	Easton	97 McK.
William Lewis Jackson	Ch.	Chester, N. Y.	86 N.
Albert Alonzo Johnson	C. E.	Covington	151 P.
Frank Simon Johnson	C. E.	Easton 677 Northampton.	
Walter Ellwood Kiefer	C.	Easton	720 Cooper.
Chester Tome Kimble	C. E.	Port Deposit, Md.	64 B.
Rush Tilgham Lerch	E. E.	Easton	210 Burke.
Jacob Daniel Lewis	E. E.	Elmira, N. Y.	33 S.
Harry Arthur Logan	E. E.	Scranton	D. K. E.
Charles Dean McClary, Jr.	L.	Phillipsburg, N. J., 89 Bullman.	
Robert Cooper McComb	E. E.	Haddonfield, N. J.	47 S.
Samuel Clarence McLaughlin†	E. E.	Easton 40 Wilkesbarre St.	
Harold Lathrope MacAskie	C.	Scranton	62 B.
Clyde Austin Miller	C. E.	Waterbury, Conn.	64 B.
Thomas Osborn	C. E.	Wainscott, N. Y.	71 B.
William Carlos Perez	C.	Camden, N. J.	26 S.
Empey Arthur Robertson†	G. S.	Newark, N. J.	132 M.
Charles Edward St. John	C. E.	Scranton	Prof. Hardy.
Edward Holmes Schwartz†	G. S.	Pennsburg	140 F.
Floyd Raymond Shafer	L.	Tatamy	Home.
Frank Lester Sherrer†	C.	Easton	T. D. Chi.
Jed David Shilling†	E. M.	Cornwall	80 N.
Justus Michell Silliman	C. E.	Easton	122 Mc.
Thomas Boughton Silliman	E. M.	Easton	122 McCartney.
Bela Buck Smith, VI†	C.	Belle Vernon	117 McK.
Edward Leo Smith	L.	Phillipsburg, N. J. 260 Sitgreaves.	
Harold Davis Smith	C.	Phillipsburg, N. J.	135 F.
Harvey Snook†	C. E.	Branchville, N. J.	19 S.
Daniel Webster Snyder, Jr.	E. E.	South Easton	Seitz Ave.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Frank Arndt Souders	L.	Phillipsburg, N. J.,	71 Mercer.
Willard Springer, Jr. †	C. E.	Wilmington, Del.	D. K. E.
Markley Stevenson	C. E.	Camden, N. J.	137 F.
Christian Earle Stiver †	C. E.	Nazareth.	100 McK.
Samuel Christian Straub	Ch.	Easton.	43 S. 5th.
William Rowland Tapscott	C. E.	Easton.	709 Ferry.
Rolland Marshall Teel	L.	Hackettstown, N. J.	66 B.
Howard Bigham Thomas	C.	Easton	21 S. 14th.
John Milton Thomas	C. E.	Edwardsdale	21 S.
Harvey Claude Updegrove	C.	Easton	Monroe.
J. Harry Van Arsdale, . . .	L.	Castile, N. Y.	113 McK.
Frederic Sager Welsh	C.	Bloomsburg	142 P.
Samuel Henry Wilde	C.	Bloomfield, N. J.	66 B.
Roger Sylvanus Williams	L.	Wilkes-Barre	140 F.
Daniel Barlo Woolcock	C. E.	Mahanoy City	22 S.
Arthur Cleveland Zuck †	L.	Easton	1300 Northampton.
JUNIORS			83.

SOPHOMORE CLASS, 1908.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Charles Elwood Albert	C. E.	Pen Argyl	43 S.
Charles Lupfer Albert	C.	Bloomsburg	58 S.
Donald Budd Armstrong	L.	Easton	209 Northampton.
Thomas Ellison Arnold†	Ch.	Pen Argyl	43 S.
Benjamin Mernard Ayerigg	C. E.	Walden, N. Y.	77 K.
Howard Benjamin Bartolet	C.	Lehighton	236 Monroe.
Wesley Nathaniel Boyer†	C. E.	Weissport	162 E.
Roie Smith Bristol	C. E.	Lima, N. Y.	38 S.
Floyd Ambrose Brotzman	L.	Easton	740 Wilkes Barre.
Henry Lewis Buckley	C.	Easton	28 N. 3d.
Martin Burns Buckley†	C. E.	Boston, Mass.	838 Wolf St.
John W. Caswell	E. M.	Lime Hill	27 S.
Louis Charles Chandler	Ch.	Scranton	102 McK.
William Frederick Cooper†	G. S.	Lakewood, N. J.	T. D. Chi
William Warren Craig	L.	New Germantown, N. J.	27 S.
William Vincient Cullen	E. E.	Phillipsburg, N. J.	152 Broad.
Edwin Howard Dalrymple	C. E.	Easton	26 N. 2d St.
Wade Hampton Davidson	C.	Junction, N. J.	Home.
William George Davis	C.	Easton	428 Berwick.
George Oliver Deshler†	E. M.	Bangor	79 N.
Elias Doremus	C. E.	Gladstone, N. J.	34 S.
Wallace Bruce Drinkhouse†	L.	Easton	247 Spring Garden.
Charles Roy Ellicott	Chem.	Easton	Beth. Road.
James Wilson Rhoades Engle	C.	Hazleton	T. D. Chi.
David Reese Evans	C.	Plymouth	24 S.
Maurice Cooke Fairchild†	E. M.	Paterson, N. J.	99 McK.
William Josiah Fetter	C.	Landisburg	81 N.
Erle Leighton Flad	E. E.	Easton	802 Cattell.
Charles James Folk	C. E.	Phillipsburg, N. J.,	62 Lewis St.
Claude Hughes Folkenson	E. E.	Easton	29 S. 10th.
Julius Freund	E. M.	Honesdale	145 P.
Leo Alvin Gates	C.	Hornellsville, N. Y.	44 S.
Raymond Lewis Gebhardt	C. E.	Easton	25 S. 13th.

NAME.	COURSE OF STUDY.	RESIDENCE	ROOM.
John William Giles	E. E.	Phillipsburg, N. J., 257 Washington.	
Charles Edmund Gilmore†	C.	Williamsport	D. K. E.
James Gerber Gorman†	G. S.	Elizabeth, N. J.	Sigma Chi.
Henry Green	Ch.	Easton Cor.	Pierce and McC.
Silas Maxwell Haight	C. E.	Elmira, N. Y.	129 M.
William Alonzo Hauck	E. M.	Easton	1044 Northampton.
Lester Cleveland Hawk	L.	Bloomsbury, N. J.,	Home.
Clarence Alexander Hensey	G. S.	Washington, D. C.	108 McK.
Harry Moore Hirst	E. M.	Lansdowne	122 McK.
Francis Michael Howard	E. M.	Duquesne	130 M.
Thomas Lawrence Howard	E. M.	Duquesne	130 M.
George Webster Hunt	C. E.	Riegelsville, N. J.	Home.
Augustus Seeley Hutchison	L.	Belvidere, N. J.	27 S.
Nathaniel Jacobs	L.	Plymouth	38 S.
George Jordan†	E. E.	Johnsonburg	151 P.
Harry Dill Kinney†	C. E.	Easton	Home.
Frank Herbert Kinsey†	E. M.	Hackettstown, N. J.	106 McK.
Archibald Spencer Kirkpatrick†	C. E.	Chatham, N. J.	128 M.
Donald Morris Kirkpatrick	C.	Easton	123 Reeder.
Paul Howard Kleinhans	L.	Easton	R. F. D. 1.
William Loyd Kline	C.	Delabole	912 Wilkes Barre.
George Albert Koerber	E. E.	Hazleton	149 P.
Eltinge Silkman La Bar	E. E.	Scranton	D. K. E.
Harry George Lee	C. E.	East Orange, N. J.	134 M.
Robert Lorne Logan	L.	Oil city	Sigma Chi.
Clarence Dickison Long	L.	Traymore	94 McK.
Hobson Thomas Long†	C.	Philadelphia	83 N.
Willim James McAvoy†	C. E.	Hazleton	129 M.
Russell Acheson McCachran	C. E.	Newville	90 N.
William John McCandless, Jr	C.	Philadelphia	D. K. E.
Carlton Shelhart McHenry	L.	Danville	82 N.
Harry Maue	C. E.	Hazleton	149 P.
Charles Pomp Maxwell	C.	Easton, 14 Chestnut Terrace.	
Wilson Isaac Miller	C.	Easton	315 McKen St.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Arthur Clemens Morgenstern	C. E.	Easton	Home.
Bliss Muir	E. M.	Bangor	176 E.
Henry Clay Mutchler	C. E.	Easton	829 Ferry.
Louis W. Myers	G. S.	Closter, N. J.	Sigma Chi.
Francis Paul O'Brien	C.	Wilkes Barre	35 S.
Walter Gray Peters	E. E.	Bushkill	D. K. E.
Anson Samuel Pollock	E. M.	Antrim	113 McK.
Robert Liddle Porter	E. M.	Clearfield	111 McK.
Charles Nelson Reading, Jr.	C. E.	Frenchtown, N. J.	137 F.
William Cleveland Reese†	L.	Wilkes Barre	85 N.
Chester Howe Rice	L.	Easton	125 Ferry.
Halsey Darius Rogers	C. E.	West Hampton Beach, N. Y.	132 M.
Clinton Joseph Ruch	C.	Lower Saucon	45 McC.
Earl Clifford Sandt	Ch.	Easton	221 McC.
Henry Karl Sangree	C.	Easton	1005 Lehigh
James Kenneth Satchell	Ch.	Easton	42 S. 2d.
Harry August Schmidt	C. E.	Brooklyn, N. Y.	115 McK.
Elmer Bonnell Severs	E. E.	Philadelphia	95 McK.
George Nash Shaeffer†	Ch.	Lockport, N. Y.	T. D. Chi.
Thomas Lockhart Shilton†	C. E.	Freedom	74 K.
Aaron Boyer Shimer	C. E.	Easton, Cor. 15th and Washington.	
James Howard Smith	C.	Berwick	147 P.
Roscoe Lee Smith	C. E.	Berwick	147 P.
John Paul Snyder†	Ch.	Easton	124 N. 10th.
Oliver Smith Styer	C. E.	Burlington, N. J.	89 N.
Arthur White Sullivan	L.	Oak Park, Ill.	T. D. Chi.
Francis William Sullivan	L.	Oak Park, Ill.	T. D. Chi.
Luther Ross Turner	C.	Westgrove	58 S.
Robert Mildrum Tyack	Ch.	Reading	76 K.
Eugene Henry Uhler	C. E.	Stockertown	Home.
Frank Henry Villie	E. E.	Elizabeth, N. J.	134 M.
Ellis Whitfield Wade	E. E.	Hackettstown, N. J.,	106 McK.
Herbert Forrest Walter	C.	Easton	479 Delaware.
William Aloysius Ward†	E. M.	Wilkes-Barre	72 B

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Andrew Parker Warner †	E. E.	Washington, D. C.	T. D. Chi.
John Howell West	L.	Easton	26 S. 5th.
Richard Samuel Whitesell †	C.	Easton	700 Walnut.
Andrew Jackson Wight	C.	Perth Amboy, N. J.	122 McK.
John Forest Williams	C.	Martin's Ferry, O.	110 McK.
Cyrus Hamlin Williston	Ch.	Phillipsburg, N. J.,	609 S. Main.
Henry Tissington Wootton	C. E.	Boonton, N. J.	145 P.
Samuel Duncan Wylie †	C.	Shippensburg	121 McK.

SOPHOMORES

109.

FRESHMAN CLASS, 1909.

NAME.	COURSE OF STUDY.	RESIDENCE	ROOM.
Joseph Anton Albrecht	L.	New York, N. Y.	172 E.
Fred Bicknell Atherton	Ch.	Scranton	Mr. Kuhn.
William Gillespie Atwood	Ch.	Hackettstown, N. J.	164 E.
Ennis Winthrop Bachman	L.	Orange, N. J.	128 M.
Ernest Stratton Barker	C.	Phillipsburg, N. J., 39 Chambers.	
Otis Tiffany Barnes	C.	Philadelphia	D. K. E.
Walter Lits Batezell	C.	Philadelphia	172 E.
Arthur Mason Baum	C.	Easton	Burke.
Roscoe Conklin Berlin	E. M.	Slatington	
Remsen Du Bois Bird	C.	Rondont	175 E.
William Thomas Boulton	C.	Brooklyn, N. Y.	171 E.
Walter Stiles Brooke	C.	Bloomsburg	70 B.
Harold McDaniel Brown	G. S.	Elizabeth, N. J.	133 M.
William Eustis Brown	L.	Boonton, N. J.	34 S.
Gilbert Van Campbell	E. E.	Brooklyn, N. Y.	77 K.
Charles William Alex. Cannon	Ch.	Philadelphia	D. K. E.
Samuel D. Carpenter	E. E.	Carpentersville, N. J.	Home.
Marvin Clarence Carter	Ch.	Scranton	102 McK.
Harold Russell Chidsey	C.	Easton	Home.
John James Colt	G. S.	Northumberland	73 K.
Paul Nelson Crispin	C. E.	Phillipsburg, N. J.	94 S. Main.
George Darsie	G. S.	Pittsburg	T. D. Chi.
William Walker Darsie	E. M.	Pittsburg	T. D. Chi.
Harry Gardner DeWitt	C. E.	Scranton	Mr. Kuhn.
Frank H. Dietrich	E. E.	Tunkhannock	79 N.
Lincoln Cook Dodge	C. E.	Hazleton	152 P.
David Reed Edwards	C.	Chatham, N. J.	44 S.
William Moodie Evans	C. E.	Syracuse, N. Y.	T. D. Chi.
Clarence Edward Fee	L.	Bombay, India	114 McK.
John Paul Felver	G. S.	Easton	167 Northampton.
Howard Walker Fields	C. E.	Media	152 P.
Nathaniel Rue Foster	C.	Imlaystown	174 E.
Frank Andrew Gehr	C.	Greensburg	117 McK.
Stephen Kirk Gillam	C.	Langhorne	88 N.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
John Wagener Green	C. E.	Easton	Pierce & McC.
William Henry Hartzell	C.	Easton	R. F. D. 5
Clifford Stanton Heinz	Ch.	Pittsburg	D. K. E.
Paul Alfred Herman	E. M.	Kutztown	100 McK.
Waldo Reed Heustis	E. M.	Philadelphia	83 N.
Charles McChesney Hutchin- son	C. E.	Trenton, N. J.	166 E.
Robert Harris Hutchison	C.	Malvern	161 E.
Richard Johanknecht	C. E.	Patchogue, N. Y.	13 S.
Addison Leslie Jones	E. E.	Easton	834 Northampton.
Paul Jones, Jr.	L.	Hatboro	65 B.
Robert Conrad Kay	G. S.	Pittsburg	D. K. E.
Mahlon Bunting Knowles	C. E.	Yardley	148 P.
Walter John Kocher	C. E.	Easton	Bushkill.
William Stanley Lanterman	E. M.	Easton	231 Bushkill.
Thomas Ridgway Lathrope	L.	Carbondale	118 McK.
Joseph G. Lear, Jr.	C.	Lambertville, N. J.	400 High.
Lasley Lee†	C. E.	Carbondale	118 McK.
Frank Hill Lerch, Jr	Ch.	Easton	Home.
George Shiffer McCaa	E. E.	Plains	85 N.
Alvah Rufus McLaughlin	L.	Dunmore	155 E.
Albert Ralph McMeen	E. M.	Mifflin	111 McK.
Ellery Dolson Manley	L.	Elmira, N. Y.	T. D. Chi.
Harry Wilmer Markle	C.	Greensburg	119 McK.
Clifton Pool Mayfield	C. E.	Washington, D. C.	78 K.
Percy Ellwood Mebus	C. E.	Easton	119 S. 9th.
George Franklin Metz	E. E.	Hazleton	Mrs. Filson.
Samuel John Mills	C.	Chefoo, China	169 E.
Ralph B. Mitchell	E. M.	Plains	Sigma Chi.
Harry Worthington Mixsell	C. E.	Phillipsburg, N. J., 163 Washington.	
Edward Corbin Moore	Ch.	Flushing, N. Y.	148 P.
David Burrowes Nevin	L.	Easton	Home.
Harold Stephenson Newins	L.	Patchogue, N. Y.	13 S.
John Allen Nightingale	L.	Easton	338 Spring Garden.
Alvin Clyde Nolf	E. E.	Easton	241 Bushkill.
Joshua T. Paxson	C. E.	Dreshertown	88 N.

STUDENTS.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Howard Kent Preston	C. E.	Trenton, N. J.	173 E.
Harry Lewis Raul	C.	Easton	Home.
James Henry Reeder	C. E.	Hughesville	127 M.
Herbert Otto Roesch	E. M.	Pendleton, Oregon	.62 B.
Elbert Ross	Ch.	Bangor	Mrs. Filson.
William Crosby Ross	C.	Wilmington, Del.	165 E.
Robert Amandus Sandt	E. E.	Easton	412 High.
Ralph Percy Schelly	Ch.	Phillipsburg, N. J., 80 S. Main.	
Adolph Philipp Schneider	E. E.	Honesdale	153 E.
Carl Frederick Schoen	Ch.	Scranton	168 E.
Irvin Jonathan Shafer	C.	Reading	39 S.
Bert William Simpson	C.	Chicago, Ill.	163 E.
Richard Nye Merrill Snyder	Ch.	Easton	717 Wood.
Harry T. Spengler	C. E.	Easton	Home.
Miller Didama Steever	L.	Manila, Ph. Is.	D. K. E.
Edgar Mark Troutfelt	L.	Scranton	167 E.
Harry Taylor Updegrave	E. M.	Easton	Paxinosa Ave.
Elmer Walker	C. E.	Trenton, N. J.	170 E.
George Franklin Walter	C. E.	Easton	R. F. D. 2.
Paul Hardtmayer Walter	E. E.	Pittsburgh	319 McC.
Robert Stanley Walter	C.	Easton	4th and Bushkill.
William Stephen Wasmund	C. E.	E. Detroit, Mich.	72 B.
Frank Happersett Wells, Jr.	L.	Chester Springs	Mr. Fetters.
Frederick Ernest Wheeler	C. E.	Easton Monroe and Brodhead.	
Allen Connelly Whetstone	C. E.	Everett	146 P.
Milton K. Yorks	C.	Bloomsburg	142 P.
Harry Ytkin	Ch.	Easton	663 Northampton.

SUMMARY.

Courses.	Seniors.	Juniors.	Sopho- mores.	Fresh- men.	Total.
Graduates					7
Classical.....	14	22	26	23	85
Latin Scientific.....	15	18	16	14	63
General Scientific.....		2	4	4	10
Civil Engineering.....	18	24	28	23	93
Electrical Engineering....	8	8	12	12	40
Mining Engineering.....	3	3	13	8	27
Chemical.....	7	6	10	12	35
Totals	65	83	109	96	360

CLASSIFICATION BY RESIDENCE.

Connecticut.... 2	Massachusetts.. 1	Oregon..... 1
Delaware..... 3	Michigan..... 1	Pennsylvania. 233
Dist. of Columbia 5	Minnesota..... 2	Utah..... 1
Illinois..... 4	New Jersey....65	China..... 1
Iowa..... 1	New York....23	India..... 2
Maryland..... 3	Ohio..... 1	Philippine Is... 1

ABBREVIATIONS OF ROOMS AND COURSES OF STUDY.

Brd.—Brainerd Hall.	McK.—McKeen Hall.
B.—Blair Hall	N.—Newkirk Hall.
E.—East Hall.	P.—Powell Hall.
F.—Fayerweather Hall.	S.—South College.
K.—Knox Hall.	D. K. E.—Fraternity House.
M.—Martien Hall.	Sigma Chi.—Fraternity House.
McC.—McCartney St.	T. D. Chi.—Theta Delta Chi Fraternity House.

C.—Classical.	E. M.—Mining Engineering.
C. E.—Civil Engineering.	G. S.—General Scientific.
Ch.—Chemical.	L.—Latin Scientific.
E. E.—Electrical Engineering.	

†Partial course; not candidates for a degree.

‡Permitted to recite; constructively not candidates for a degree.

—Absent at time of publication of catalogue.

1905						1906												1907								
JULY						JANUARY						JULY						JANUARY								
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VOL. 1, NO. 2

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

FEBRUARY, 1907

BULLETIN
OF
LAFAYETTE COLLEGE

GENERAL CATALOGUE
1906-1907

PUBLISHED QUARTERLY BY LAFAYETTE COLLEGE

Entered as second-class matter November 20, 1906, at Easton, Pennsylvania,
under the Act of Congress of July 16, 1894.



PARDEE HALL.

B U L L E T I N O F
LAFAYETTE COLLEGE

INCLUDING THE COURSES OF STUDY
IN THE
CLASSICAL *and* SCIENTIFIC
DEPARTMENTS
EMBRACING THE
SCHOOLS *of* CIVIL, MINING, ELECTRICAL
and MECHANICAL ENGINEERING,
and of CHEMISTRY

SEVENTY-FIFTH YEAR
1906-1907

EASTON, PENNSYLVANIA

1907

VERITAS LIBERABIT.

CONTENTS.

	PAGE.
Calendar.....	5
Lafayette College.....	6
Board of Trustees.....	8
Faculty.....	9
College Officers.....	12
Admission.....	13
Courses of Instruction in All Departments.....	22
The Bible—Physical Culture.....	23
Classical Department:—.....	24
The Course of Study.....	24
Philosophy.....	25
History and Political Science.....	27
Rhetoric and Elocution.....	31
Languages and Literature.....	32
Mathematics and Astronomy.....	41
Physics.....	43
Chemistry.....	44
Biology.....	44
Special Courses in Biology for Students Preparing for the Study of Medicine.....	45
Geology.....	49
Synopsis of Classical Studies.....	52
PARDEE SCIENTIFIC DEPARTMENT.—	
General Courses:—	
Latin Scientific Course.....	59
The Course of Study.....	60
General Scientific Course.....	60
The Course of Study.....	65
Technical Courses:—	
Courses Common to All Departments.....	68
Mathematics, Surveying, Drawing, Logic, Rhetoric, and Elocution, Mineralogy, Physics, Chemistry.....	69
Civil Engineering Course.....	78
Summer School of Engineering.....	85
Mining Engineering Course.....	88
Electrical Engineering Course.....	95
Mechanical Engineering Course.....	99

	PAGE.
Chemical Course.....	100
General Information.....	108
Arrangements of Lectures and Recitations.....	108
Attendance.....	108
Examinations, Standing.....	108
Absences and Re-examinations.....	109
Graduation, Commencement, Degrees.....	112
Religious Instruction.....	115
Lectures.....	117
Terms and Vacations.....	117
Buildings.....	117
Libraries and Reading-Rooms.....	121
Scientific Collections.....	124
Literary and Scientific Societies.....	125
Expenses.....	126
Bequests and Devises.....	132
Prizes and Scholarships.....	132
Recent Additions.....	137
Degrees and Honors Conferred, 1906.....	137
Commencement, 1906, Prizes.....	139
Alumni Associations.....	143
Students:—	
Graduate Students.....	145
Undergraduates.....	145
Summary.....	159

LAFAYETTE COLLEGE.

Lafayette College is situated at Easton, Pa., upon a site of remarkable beauty, overlooking the confluence of the Delaware and Lehigh rivers. It is thoroughly furnished with the buildings and apparatus to do the work of a progressive college and polytechnic school, and also with the equipment, so important in this age, for a healthful and wholesome student life. Its large and able faculty represent the best traditions of scholarship as well as the recent extensions of scientific knowledge and the newer methods of research. It frankly recognizes its obligation to give its students training, as well as the opportunities for acquiring knowledge, and to make its discipline include moral and spiritual culture. Recent revisions of the requirements for admission and of the courses of study have been made, and it is the purpose of this bulletin to call attention to them. It will be found that these changes meet the demands of the day for liberty of choice without sacrificing the supreme consideration of thoroughness.

It is also desired to call attention to the proposed celebration of the College's SEVENTY-FIFTH ANNIVERSARY.

The first exercises were held on May 9, 1832. Owing to the inconvenience of holding a special celebration so near the Commencement season it has been decided to hold it in connection with Commencement, making Alumni Day, Tuesday, June 18th, the great day. The interest and coöperation of all the former students and friends of the College is asked in the effort to make it very memorable.

In this day of great endowments it is necessary that every College should seek constant additions to its funds in order to continue to do the work demanded of it. Recent years have brought great prosperity to the College, new buildings have been erected, new professorships endowed, and its rooms are full to overflowing with students. There is urgent demand for expansion and enlargement in every direction. The aid of every friend of the College is needed in order to take advantage of the present opportunities.

A movement is on foot to raise a fund of half a million dollars to meet the immediate needs of the College. A million could easily be used to advantage! More than half of this fund has already been subscribed. The hearty coöperation of all who love the name of Lafayette College will certainly secure the entire amount.

Among the needs to be met by this fund are the providing of a course in Mechanical Engineering; the extension of the courses in Civil and Mining Engineering; the addition of a central steam and electrical plant, of a larger gymnasium building, and of additions to the library. The competition of the state colleges and universities renders the increase of the scholarship funds very necessary. No adequate memorial—unless the very life and work of the College be so considered—of President Wm. C. Cattell, D.D., LL.D., now exists; such a memorial would be most fitting and timely. There is scarcely a department which is not asking for larger means to meet the growing demands made upon it. With the fullest appreciation of the importance of these requests the College turns to its friends for the means of granting them.

TRUSTEES.

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WILLIAM MCMURTRIE, M.E., PH.D.....	New York City.
SAMUEL L. FISLER, A.M., <i>Secretary and Treasurer</i> ,	Easton, Pa.

Of the above Trustees, Messrs. Kirkpatrick, '63; Hand, '65; Gayley, '76; Snodgrass, '57; Waller, '70; Pardee, '74; Adamson, '77; Hogg, '78; Sheaffer, '78; Radcliffe, '77; Eckard, '66; Green, '83; Markle, '80; E. J. Fox, '78; King, '71; Moore, '73; Baker, '77; Cattell, '83; Glover, '71; Shaw, '85; Laird, '92; Derr, '75; and McMurtrie, '71, are Alumni of Lafayette College.

MEETING OF THE TRUSTEES.

Thursday, February 14th, 1907.....	ANNUAL BUSINESS MEETING.
Tuesday, June 18th, 1907.....	COMMENCEMENT WEEK.
Wednesday, October 23rd, 1907.....	FOUNDERS' DAY.

FACULTY.

REV. ETHELBERT DUDLEY WARFIELD, D.D., LL.D.,
President, Professor of History and Political Science.
 (John I. Blair Foundation.)

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Emeritus Professor of Modern Languages.

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Professor of the Greek Language and Literature.

REV. SELDEN JENNINGS COFFIN, A.M., PH.D.
 (James H. Coffin Professorship of Astronomy.)

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*Dean of the Pardee Scientific Department, Professor of Mechanics
 and Experimental Philosophy.*

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Lecturer on Sanitary Science.

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 (George Hollenback Professorship of Mathematics.)

WILLIAM BAXTER OWEN, A.M., PH.D.,
Professor of the Latin Language and Literature.

EDWARD HART, PH.D.,
Professor of Analytical Chemistry.
 (William Adamson Professorship of Analytical Chemistry.)

* Died at Vevey, Switzerland, November 28, 1906.

JAMES MADISON PORTER, C.E.,
Professor of Civil and Topographical Engineering.

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Francis A. March Professor of the English Language.

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Professor of Mining Engineering and Graphics.
(George B. Markle Professorship.)

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Lecturer on Hygiene, Director of Physical Training.

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(Jesse Chamberlain Professorship of Botany.)

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Professor of Mineralogy and Geology.

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Professor of Municipal Engineering

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(James Renwick Hogg Professorship.)

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Assistant Professor of Analytical Chemistry and Metallurgy.

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Assistant Professor of English Literature.

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Instructor in Mathematics.

JAMES HENRY DELONG, B.S.,
Instructor in Chemistry.

EDWIN DUBOIS CHASE, B.S.,
Instructor in Chemistry.

REV. CARL FREDERIC PFATTEICHER, A.B.,
Tutor in Latin and Hebrew.

WILLIAM MACKAY SMITH, PH.B.,
Tutor in Mathematics.

JOHN WHITNEY COLLITON, C.E.,
Instructor in Mathematics.

JAMES BRYANT HOPKINS, A.M.,
Instructor in Modern Languages.

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Instructor in Greek and German.

ASHER SEIP, A.M.,
Instructor in Municipal Law.

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Assistant in Biology.

EDWARD FRANKLIN FARQUHAR, A.B.,
Assistant in English

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Clerk.

JAMES W. MOORE, A.M., M.D.,

Inspector of Buildings.

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Treasurer.

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Librarian.

REV. MAURICE A. FILSON,

Assistant Librarian.

EDWARD HART, PH.D.,

Curator of Gayley Hall, and Librarian of the Henry W. Oliver Library.

CHARLES B. GREEN, E.M.,

Registrar.

ALBERT MOORE LANE, PH.B.,

Assistant in Treasurer's Office.

CLASS DEANS.

SENIOR CLASS.....The President.

JUNIOR CLASS.....Professors Mecklin and Peck.

SOPHOMORE CLASS.....Professors Youngman and Hall.

FRESHMAN CLASS.....Professors Hardy and Owen.

LAFAYETTE COLLEGE.

ADMISSION.

Every applicant for admission to the College is expected to report at the College offices and register immediately on his arrival. Before registering he must submit to the Registrar a satisfactory certificate of moral character from his pastor or some other person known to the College authorities, and a diploma or certificate of graduation from the school which he last attended, or, if he be not a graduate, a statement that he leaves the school with the approval of its principal and is honorably dismissed to this College, with a statement of the studies which he has pursued and the course which he desires to pursue. His application having been approved he is admitted to the examinations. Examinations are regularly held on the day following the annual commencement day in June, and the days preceding the first day of the autumn term in September, and also on the first day of the second and third terms.

Special attention is called to the changes in the entrance requirements since the publication of the 1905-'06 Catalogue. Candidates may now offer either German or French, and either Natural Philosophy or Chemistry, for admission to the Latin Scientific, General Scientific and Technical Courses.

REQUIREMENTS FOR ADMISSION TO THE FRESHMAN CLASS.

CLASSICAL COURSE.

For admission to the Classical Course candidates are examined in the following subjects:

Geography (A) and (B)	English.
History (A) and (B).	Latin.
Mathematics (A).	Greek.

(For details of subjects, see pages 15-19.)

LATIN SCIENTIFIC COURSE.

For admission to the Latin Scientific Course candidates are examined in the following subjects:

Geography (A) and (B).	English.
History (A) and (B).	Latin.
Mathematics (A).	German (A) or French (A).
Natural Philosophy or Chemistry.	

(Candidates for the Classical and Latin Scientific Course offering Mathematics (A) and (B) can take advanced courses in Mathematics.)

GENERAL SCIENTIFIC COURSE.

For admission to the General Scientific Course candidates are examined in the following subjects:

Geography (A).	English.
History (A).	German (A) and (B) or French (A)
Mathematics (A) and (B).	and (B).
Natural Philosophy or Chemistry.	

CIVIL, MINING, ELECTRICAL, MECHANICAL ENGINEERING AND CHEMICAL COURSES.

For admission to the Schools of Engineering and Chemistry candidates are examined in the following subjects:

Geography (A).	English.
History (A).	Natural Philosophy or Chemistry.
Mathematics (A) and (B).	German (A) and (B) or French (A) and (B).

DETAILS OF SUBJECTS REQUIRED FOR ADMISSION TO THE FRESHMAN CLASS.

GEOGRAPHY (A).—Political or Physical Geography.

GEOGRAPHY (B).—Ancient Geography.

HISTORY (A).—*United States*: Johnston, McMaster or Fiske.

General History: Fisher or Freeman. Such books as Myers' and Swinton's *General History* are not recommended.

HISTORY (B).—*Roman History* to Augustus, and *Greek History* to Alexander. The requirements are intended to be additional to the requirement in *General History*, and should be met by the use of books on Roman and Greek History, such as Myers', "Rome, Its Rise and Fall;" Morey's, Leighton's, or Allen's *Roman History*, and Morey's or Oman's *Greek History*.

MATHEMATICS (A).—*Arithmetic*: Complete, including the Metric System.

Algebra: Fundamental principles. Factoring. Fractions. Simple Equations. Involution. Evolution. Exponents. Quadratic Equations. Simultaneous Quadratic Equations. Equations solved as Quadratics. Properties of Quadratic Equations.

Geometry: Plane Geometry entire: as in Wentworth, Wells or Loomis.

MATHEMATICS (B).—*Solid Geometry*.

Algebra.—Surds and Imaginaries. Simple Indeterminate Equations. Inequalities. Ratio. Proportions and Variations. Progressions.

Plane Trigonometry.—Through the solution of right and oblique triangles (Crawley or an equivalent); candidates should bring their logarithmic tables to the examination.

NATURAL PHILOSOPHY.—The elementary principles (Avery, Gage, or Hall and Bergen).

CHEMISTRY.—Elements of Inorganic Chemistry.

ENGLISH.—*Grammar*: A general examination will be given with special reference to any particular text-book to test familiarity with paradigms and syntactical analysis, and the correct use of English idioms.

Franklin's Autobiography and *Milton's Paradise Lost*, Books I and II; to be thoroughly studied as to subject-matter, form, and structure including the language used, as to its etymology, syntax, and prosody.

Prose Composition: The writing of a short essay will be required upon a subject drawn from the foregoing text-books. No candidate will be accepted in English whose work is notably deficient in point of spelling, punctuation, idioms, or division into paragraphs.

The works recommended for study by the Association of Colleges and Preparatory Schools of the Middle States and Maryland will be accepted in place of Franklin and Milton, as follows:—

For 1906, 1907, 1908: Shakespeare's *Julius Caesar*; Milton's *L'Allegro, Il Penseroso, Comus, and Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton and Addison*; Lincoln's *Gettysburg Address*.

1909, 1910, 1911: Shakespeare's *Macbeth*; Milton's *Lycidas, Comus, L'Allegro, and Il Penseroso*; Burke's *Speech on Conciliation with America*, or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration*; Macaulay's *Life of Johnson*, or Carlyle's *Essay on Burns*.

In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

Reading: Every candidate must have read a certain number of works of English literature. It is expected that the reading shall be done under the direction of an instructor and accompanied by frequent examinations during the preparatory course, for which four years is appropriate.

The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of the books. In preparation of this part of the requirement, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.



VAN WICKLE MEMORIAL LIBRARY.

The books set for this part of the examination will be those recommended by the Association of Colleges and Preparatory Schools of the Middle States and Maryland, as follows:—

For 1906, 1907, 1908: Shakespeare's *Macbeth* and *The Merchant of Venice*; *The Sir Roger de Coverley Papers* in *The Spectator*; Irving's *Life of Goldsmith*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe* and *The Lady of the Lake*; Tennyson's *The Passing of Arthur*, and one of the three Idyls, *Elaine*, or *Geraint and Enid*, or *Gareth and Lynette*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

1909, 1910, 1911:

Group I (two to be selected).

Shakespeare's *As You Like It*, *Henry V*, *Julius Caesar*, *The Merchant of Venice*, *Twelfth Night*.

Group II (one to be selected).

Bacon's *Essays*; Bunyan's *The Pilgrim's Progress, Part I*; *The Sir Roger de Coverley Papers* in *The Spectator*; Franklin's *Autobiography*.

Group III (one to be selected).

Chaucer's *Prologue*; Spenser's *Faerie Queene* (selections); Pope's *The Rape of the Lock*; Goldsmith's *The Deserted Village*; Palgrave's *Golden Treasury (First Series) Books II and III*, with especial attention to Dryden, Collins, Gray, Cowper and Burns.

Group IV (two to be selected).

Goldsmith's *The Vicar of Wakefield*; Scott's *Ivanhoe*; Scott's *Quentin Durward*; Hawthorne's *The House of the Seven Gables*; Thackeray's *Henry Esmond*; Mrs. Gaskell's *Cranford*; Dickens' *A Tale of Two Cities*; George Eliot's *Silas Marner*; Blackmore's *Lorna Doone*.

Group V (two to be selected).

Irving's *Sketch Book*; Lamb's *Essays of Elia*; De Quincey's *Joan of Arc* and *The English Mail Coach*; Carlyle's *Heroes and Hero Worship*; Emerson's *Essays* (selected); Ruskin's *Sesame and Lilies*.

Group VI (two to be selected).

Coleridge's *The Ancient Mariner*; Scott's *The Lady of the Lake*; Byron's *Mazeppa* and *The Prisoner of Chillon*; Palgrave's *Golden Treasury (First Series) Book IV*, with especial attention to Wordsworth, Keats and Shelley; Macaulay's *Lays of Ancient Rome*; Poe's *Poems*; Lowell's *The Vision of Sir Launfal*; Arnold's *Sohrab and Rustum*; Longfellow's *The Courtship of Miles Standish*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Browning's *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Evelyn Hope*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of the French Camp*, *The Boy and the Angel*, *One Word More*, *Hervé Riel*, *Pheidippides*.

LATIN.—*Grammar*: The Roman method of pronunciation is used.

Caesar: Commentaries, four books, for a portion of which an equivalent in Nepos will be received.

Cicero: Orations, seven.

Virgil: Æneid, six books; *Bucolics*.

Prose Composition: Daniell's, or equivalent.

GREEK.—*Grammar*: Pronunciation according to the written accents and in accordance with the preface to Goodwin's *Grammar* or Hadley-Allen's, Sections 11, 14, 19, 20, 21.

Xenophon: Anabasis, four books, for a portion of which an equivalent in *The Cyropaedia* will be received.

Homer: Iliad or *Odyssey*, three books; or

New Testament: Gospels, three.

Prose Composition: Collar and Daniell, or equivalent.

GERMAN (A).—An accurate knowledge of the principles of grammar, especially the inflection of articles, adjectives, pronouns, and nouns; the conjugation of the weak and strong verbs; the uses of the modal auxiliaries; the prepositions and their government; the elementary rules of syntax and word order; to be able to read at sight ordinary German prose. It is believed that this requisite facility can be acquired by reading not less than two hundred duodecimo pages of simple German.

GERMAN (B).—This includes a thorough knowledge of accidence of the elements of word-formation, and of the principal uses of the prepositions and conjunctions. The candidate should be familiar with the essentials of German syntax, and must possess the ability to translate into German easy English prose; to translate at sight passages from standard classical authors. The reading of at least three hundred and fifty pages in addition to that required under German (A) will develop such ability. For examination no specific authors or work are designated. All candidates are required to bring a statement from their teacher, mentioning text-books used and authors read, including the number of pages translated.

FRENCH (A).—This embraces a thorough knowledge of the rudiments of grammar, including the inflection of the regular and the more common irregular verbs; the inflection of nouns and adjectives for gender and number; the uses of articles and partitive constructions; the forms and positions of personal

pronouns; the uses of the other pronouns. Candidates should be able to read at sight ordinary modern prose. It is believed that this ability is acquired by reading two hundred duodecimo pages from the works of at least three different authors.

FRENCH (B).—Candidates should show a thorough knowledge of accidence, and a familiarity with the essentials of French syntax, especially the uses of the tenses, modes, prepositions and conjunctions. They must be able to translate into French a connected passage of simple English, and to translate at sight standard French authors. This proficiency may be acquired by reading, in addition to that required under French (A), not less than four hundred pages of the works of various standard authors. For examination no special authors or works are designated. Applicants should present a statement from their teachers setting forth the text-books used and the number of pages translated.

PARTIAL, OR SPECIAL, COURSES.

In addition to the courses above specified, students may be admitted under exceptional circumstances to pursue courses of study of a special character not leading to a degree. Such students are required to undergo such preliminary examination as may be deemed necessary to ascertain their fitness to pursue the proposed course, and when admitted they are subject to the same rules and regulations and the same examinations in the studies pursued as are other undergraduates. On completing their course they will receive, on application, certificates of proficiency in such courses as they have satisfactorily completed.

ADVANCED STANDING.

Candidates for advanced standing are examined not only in the preparatory studies, but also specially in the previous studies of the class they wish to enter, or their full equivalents.

Students from another College bringing certificates of rank and honorable dismissal are permitted to recite on trial with corresponding rank in this College, until there is sufficient test of their qualifications for admission to regular standing. They will, however, be examined on whatever studies of the course may not be in the curriculum of the College from which they come, unless there are full equivalents.

No student, whether from another College or not, will be admitted to the Senior Class as a candidate for a degree after the beginning of the second term.

CONDITIONS.

Students who fail to pass in a part of the subjects in which they are examined may be admitted upon the condition that they pass a satisfactory examination on such subjects before the end of the term next after that in which they enter. The number of such conditions with which a student is admitted to the College will be determined in each case by a vote of the Faculty.

CERTIFICATES.

Certificates of the Examination Board of the School and College Association of the Middle States and Maryland, of the Regents of the University of the State of New York and of certain approved preparatory schools are received in lieu of examination for entrance. Certificates, which will be accepted only from graduates of regularly prescribed preparatory courses, must be signed by the Principal and certify only to work done during school hours. They should be filed with the Registrar before the entrance examination in June. Blank certifi-

cates will be furnished upon application. Wherever the certificate does not cover one or more of the requirements of admission or supply a satisfactory equivalent, an examination upon such subject or subjects will be required. Such certificates will not be received after one year from the completion of the period of study for which they are given unless an additional certificate of continued study accompany them.

MATRICULATION.

No student is considered a regular member of the College until after his matriculation, which takes place thirty days after his entrance. During the interval between his admission and matriculation he is, however, in all respects subject to the laws of the College.

COURSES OF STUDY REQUIRED OF ALL DEPARTMENTS.

All the courses of study are so arranged as to provide for at least three lectures or recitations each week-day except Wednesday and Saturday, which are half-holidays, there being no afternoon recitation. Wednesday evening is set apart for the Literary Societies, and in order to co-operate with their work the first exercise on Thursday morning is given to elocution. Every student is expected to conform to this arrangement of hours. Special students must arrange a schedule of sixteen weekly exercises. One recitation hour is regarded as the equivalent of three hours of field and laboratory work.

BIBLICAL INSTRUCTION.

The morning recitation in every class of all departments on Monday in each week is given to Biblical instruction. In the Freshman year a general view of the contents of the Bible and of each book is given, with special attention to chronology, history and geography. The class is divided into three sections, instructed by Prof. Hardy, Prof. Hall and Mr. Pfatteicher. The textbooks are the English Bible and Coleman's Geography of the Bible. In the Sophomore year the Acts of the Apostles is studied. The students in the Classical Course read the book in the original Greek with Prof. Youngman; those in the Latin Scientific in Latin with Prof. Owen, and the Technical divisions in French with Mr. Hopkins and Mr. Hunt. Special attention is given to

the lives and labors of the Apostles and to the founding of the Christian Church. In the Junior year the Epistle to the Romans is studied. The students in the Classical Course read it in the original with Prof. Francis A. March, in the Latin Scientific with Prof. Mecklin in Latin, and in the Technical courses with Prof. Raschen in German. It is studied with reference to language and doctrine. In the Senior year a course, in which Uhlhorn's Conflict of Christianity and Heathenism is used as a text-book, is given during the first half of the year by the President, and during the remainder of the year in the History of the English Bible. In addition to these courses the Old Testament in the original Hebrew is offered as an elective study in the Senior year.

It is intended that the Bible shall be a central object of study throughout the course. It is dealt with reverently as the Word of God, and as the inspired and infallible rule which God has given to His people.

In connection with the study of the Bible, certain prizes were established by the Rev. Lyman Coleman, D.D., sometime professor of Biblical and Physical Geography in Lafayette College. These prizes are awarded at the end of Freshman year. (See page 132.)

PHYSICAL CULTURE.

HUMAN PHYSIOLOGY.

The lectures on Health to the Freshman Class include the general principles of Physiology and Anatomy, and are thorough and practical, and illustrated by diagrams.

THE GYMNASIUM.

The College has ample ball grounds, tennis grounds, and boating facilities, a light, airy, tasteful gymnasium,

thoroughly equipped with the best modern appliances, dressing-room, bath-rooms, etc., and uses a thorough system of physical culture, participated in by all the students, who are required to be in the Gymnasium at set times for class drill. The Gymnasium is also open at given hours for voluntary work. Before entering the Gymnasium each student must be examined by the Medical Director, and if it is found that the regular class exercises are not likely to be healthful for him, other exercises will be prescribed suited to his constitution and condition. All the exercises in the Gymnasium are under the supervision of the Director of Physical Training.

A fine athletic field has recently been purchased and equipped by the Alumni and Easton friends of the College. It adjoins the campus on the west, and affords excellent facilities for all outdoor sports.

All athletic sports are under the careful supervision of a committee of the Faculty, of which the Medical Director of the Gymnasium is a member. *No student is permitted to take part in public contests without written permission from his parents.*

CLASSICAL DEPARTMENT.

The Classical Department consists of the historic course in the *Arts*, or *Humanities*, and retains the regular character of that course, which has so long been regarded as the foundation of a liberal education. The course has a fixed curriculum during the earlier years, but in the latter part of the course latitude is allowed by the introduction of elective studies for the student to select such studies as he deems the best preparation for his subsequent pursuits.

This Department being the usual preparation for the learned professions, including teaching and journalism, special regard is given to the necessities of these professions, so that in addition to being the thoroughly tried means of securing a broad and liberal culture and an approved foundation of Christian scholarship, it is particularly fitted to prepare men for the learned professions. It is also recognized as a desirable preparation for other pursuits, including scientific and technical professions, wherever the circumstances of the student will permit.

The instruction embraces a systematic study of the Bible and the Evidences of Christianity throughout the course, of the Ancient and Modern Languages and their literatures, together with Comparative Philology; Pure and Applied Mathematics; Physics, Chemistry, and the Natural Sciences; Rhetoric and Elocution; Logic and Metaphysics; History and Political Science; and Mental and Moral Philosophy.

PHILOSOPHY.

Professor Mecklin.

The course in Philosophy is designed to be continuous from the beginning of the second term of the Junior to the end of the Senior year. Psychology and Logic are required during the Junior year. The Psychology occupies three hours per week during the second and third terms of the Junior year and is offered as an elective in the Senior year. During the third term of the Junior year two hours weekly are given to Logic.

In the Senior year Philosophy is both required and elective. The required work occupies three hours for the first two terms and two hours weekly for the third term.

The first term is devoted to lectures upon the chief problems of Epistemology and Metaphysics. These questions are approached from the historical point of view. During the second term the chief problems of Ethics, such as the *origin* of moral obligation and judgment, the *motives, objects* and *aims* of morality, are considered, and parallel reading is assigned upon which reports are required. The third term is occupied with a course of lectures upon the Philosophy of Religion, dealing with the various theories as to the origin and nature of religion, the relation of religion to ethics, of religion to science, the theistic arguments, etc.

An elective of two hours per week is also offered throughout the Senior year. Below is a synopsis of the course with text-books, etc.

- I. PSYCHOLOGY.—Lectures and parallel reading, three hours per week, second and third terms Junior, required. Text-book, Angell's Psychology.
- II. LOGIC.—Two hours, third term Junior, required. Creighton's Logic.
- III. HISTORY OF PHILOSOPHY.—Lectures three hours per week, first term Senior required. Parallel reading Roger's History of Philosophy.
- IV. ETHICS.—Lectures three hours weekly, second term Senior, required. Text-book, Mackenzie's Manual of Ethics.
- V. THEISM.—Lectures two hours per week during the third term Senior. Parallel reading Balfour's Foundations of Belief and Flint's Theism.
- VI. ELECTIVE.—Two hours weekly throughout the Senior year, the subjects to be announced each term by the instructor. These electives include such subjects as Advanced Psychology, Types of Ethical Theory, History of Education, Greek Philosophy, German Idealism, Aesthetics, etc. They are intended to supplement the required courses in Philosophy.

HISTORY AND POLITICAL SCIENCE.

The President and Professors Youngman, Owen and Roberts.

The work of this department is designed to give such a general knowledge of History and Political Science as belongs to a liberal education. At the same time sufficient work is offered in the electives to prepare those students who desire to take up graduate work, or to engage in the practice of law or the public service, or teaching. The instruction is given by text-book, by lectures, and by library references, the students reporting the results of their reading partly during the regular work of the class, and partly in the form of essays. The subjects covered by the course are in detail as follows:

ANCIENT HISTORY.

Professors Youngman and Owen.

In connection with the courses in Latin and Greek a very careful survey is given of Ancient History, but especially of the history of Greece and Rome. The topics immediately connected with the authors read are given particular attention, but an attempt is made to bridge the period intervening, and as the authors represent the most important periods of the history of Greece and Rome the result is that the historical accent is rightly placed. Attention is given not merely to the political history of the various periods under discussion but also to the social, literary and philosophical history of each epoch. The close relation which exists between History and Geography is recognized, and a careful study of Classical Geography forms a part of the course.

HISTORY OF ENGLAND.

The President and Professor Roberts.

An elective course in English History is offered in the first and second terms of Junior year. The narrative history of England is made the basis of study, but especial attention is given to the economic, social, and intellectual history of the country, and to the development of English institutions. The general aim of this course, in its method, is to prepare for the courses in American History. Greene's Short History of the English People is used as a text-book, and the importance of collateral readings is emphasized.

AMERICAN COLONIAL HISTORY TO 1783.

The President and Professor Roberts.

This course is offered as an elective in the second term Junior year, and is intended to trace the beginnings of the American nation rather than the details of the history of the individual colonies. Emphasis is therefore laid on the European inheritance brought to this country by the colonists, their development of American institutions in the new environment, the expansion of population, the struggle between France and England for North America, the underlying causes of the Revolution, the growth of independence and union. Thwaite's *The Colonies* and Hart's *Formation of the Union* are used as text-books, supplemented by lectures, readings, and reports.

CONSTITUTIONAL HISTORY.

THE UNITED STATES.

The President and Professor Roberts.

A required course is given in the third term of the Junior

year, dealing with the Constitution from the point of view of its historical development. Fiske's *Critical Period of American History* is used as an introduction to this course, and it is accompanied by a critical study of several important constitutional documents, such as *Magna Charta*, the *Petition of Rights*, the *Articles of Confederation*, and the *Ordinance of 1787*. Then the Constitution is taken up section by section and studied with reference to its historical development and its subsequent interpretation and construction.

This course is followed by a course dealing with the constitutional history of the first seventy years under the Constitution, which undertakes to investigate the more important constitutional questions of the early years of the Republic with sufficient thoroughness and care to give the student a firm grasp of a sound method of historical study.

The study of American institutions is interrupted in the first term of Senior year by a course in general constitutional history, but is resumed in the second and third terms with a wider outlook. A more detailed study is now given to the whole subject, with *Bryce's American Commonwealth* as an introduction and general guide. It is supplemented by lectures and discussions.

These three courses are designed to give a broad and intelligent basis for American citizenship, and to prepare the way for original investigation in American history. The Ward Library is rich in material for special studies, and every effort is made to encourage the student to make independent researches.

GENERAL CONSTITUTIONAL HISTORY.

A course in General Constitutional History is begun as a required course in the first term of the Senior year and continued as an elective through the second and third terms. It begins with the origin of the State, and following the plan of Woodrow Wilson's *The State*, pursues the development down to the present time. The recitations are supplemented by lectures and reading, with written reports of investigations.

POLITICAL SCIENCE.

The President, Professor Roberts and Mr. Seip.

This Department embraces courses in the elements of International Law, and in the origin and development of the State in the first term of Senior year, and in Political Economy in the second and third terms of Senior year, and elective courses by Mr. Seip in Blackstone's Commentaries.

The course in International Law undertakes to do little more than to exhibit the fundamental principles which govern international affairs, and by the study of a few important cases to show the method of diplomatic procedure. It is especially intended to give the students the information needed to understand current discussions of foreign relations. In the history of the State, Prof. Woodrow Wilson's book is used, and is supplemented by lectures illustrating the analytical method.

The course in Political Economy consists of a rapid survey of the principles during second term Senior year, and to the discussion of practical applications of economic theories during the third term. Special attention, however, is given to the questions which are vital issues of

the day, such as Finance and the Tariff. The utmost care is taken to avoid the teaching of party politics under the guise of Economic Science. At the same time the teaching in this Department recognizes the importance of inculcating honest views on the money question and the right of American citizens to know what can be said for the American policy of Protection both in the abstract and in its actual workings.

All these courses are supplemented by papers, essays and debates. The Literary Societies and the public debates do much to stimulate interest in the class work, and to give it practical application.

RHETORIC AND ELOCUTION.

The course in Rhetoric includes earlier instruction and praxis in Diction, Figures of Speech and Style, and later in Invention and in the Principles of Rhetorical Criticism; and these applied to required practice in the writings of original essays, orations and themes.

Besides the study of text-books, weekly written essays are required, and declamations in class or before the College. *Extemporaneous Speaking* is also cultivated. In those studies, such as Mental Philosophy, in which the recitation can be had by topics, students are required to take the floor daily and present an outline of the author's thought. Extemporaneous (unwritten) debates are also had in class. The Juniors, during the third term, and the Seniors deliver unwritten addresses on subjects of their own choice. The other classes speak selected pieces. Great pains are taken to encourage the habit of simple and earnest communication of connected thought.

THE GREEK LANGUAGE AND LITERATURE.

Professors Youngman and Mr. Hunt.

The aim of the Greek Course is to be thoroughly grounded in Greek forms, idioms, and syntax—to learn the composition of words, the formation of phrases, and the construction of sentences. In the earlier part of the course there is a daily lesson in the grammar, with a test of the student's ability to apply it to the text just read. Etymologies and English derivatives are constantly called for.

The best passages of the best representative authors are translated into the best attainable English. In poetry there is a study of Homer, Sophocles, and Aristophanes; in prose, of Herodotus, for history; of Æschines and Demosthenes, for oratory. For ethical questions there is a study of Socrates in the *Memorabilia* and the *Apology*.

Attention is directed to Greek life, education, faith, religion, and habits of thought and expression, as compared with our own. The old Greek citizen and the modern American citizen are brought face to face.

Essays are also called for giving the results of the student's researches. When *De Corona* is read there is a special class debate on the relations of Æschines and Demosthenes with Philip. When Homer is read there are references to the Bible for comparison of faith, religion, and form of expression. There is an attempt to bring the students to an intelligent appreciation of the beauty and grace and force in Greek literature, to cultivate the taste, regulate the heart, and discipline the mind.

THE LATIN LANGUAGE AND LITERATURE.

Professor Owen and Mr. Pfatteicher.

It is the aim of this Department to give the students an intelligent acquaintance with the language, literature, and institutions of Rome, and qualify them for the efficient treatment of these subjects as teachers, or for the further scholarly pursuit of these and kindred studies after graduation if they should be so disposed. We try to unite accuracy in details with facility in reading within the limits of a reasonable range.

The authors read are those which present the Latin language and literature at different stages, but mainly at its best; and the method of pursuing them is based on the belief that the best way to master these great works of genius, whether in their linguistic or literary aspects, is by the minute and careful study of selected passages. Such passages are examined, therefore, clause by clause and word by word, the common matters of grammar and idiom coming first. In the earlier parts of the course there is a grammar lesson with each recitation, and the application of grammatical principles to the text in hand forms an important part of the daily drill. The elementary principles of phonology and a review of etymology and general syntax are thus treated in the Freshman year, and in the Sophomore year a more exhaustive study of moods and tenses and the formation of words. Then come questions of style, the author's habits of diction, his use of synonyms, rhetorical forms of speech, the arrangement of words, etc., and, if poetry, the significance of metrical forms.

Literary and historical allusions are looked up, also mythology, biography, geography, antiquities, every-

thing, in short, which can help to clear up the author's meaning.

Aside from these incidental inquiries in connection with every text, various collateral branches of study are regularly pursued from term to term. There is the topical study of history in connection with Livy and Cicero (*De Oratore*); of antiquities in connection with Horace; of literature in connection with Latin Hymns and Tacitus; and of the history of philosophy in connection with Cicero (*De Officiis*).

A brief course in Roman archaeology is also given, illustrated by an extensive collection of Roman photographs.

It is kept in mind, also, that the training in this Department should be practically helpful and valuable to those who are to speak and write the English language. With a view to cultivate the power of expression, besides the oral work of the class-room, there are frequent exercises in writing, in which it is sought to faithfully render the author into the English of our literary standards.

In preparation for the course in Comparative Philology given in the Senior year by Professor March, attention is called to the history of inflection, the origin and significance of the affixes of case, number, tense, mood, voice; to the physiology of speech, the regular weakenings of sound, and a comparison of forms in the Latin, both etymological and syntactical, with the corresponding forms in the Greek and English.

The Latin is pronounced according to the Roman method. Harper's New Latin Lexicon is used; Allen & Greenough's Latin Grammar (new edition) is used

as a text-book; Lane and Gildersleeve, and the larger grammars of Madvig and Roby will be found helpful for references.

THE HEBREW LANGUAGE.

Professor Mecklin.

Hebrew is an elective study in the second and third terms of the Senior year. As preparatory to more advanced work, special attention is given to the etymological principles of the language, and also to the inflexions and laws of euphonic changes. To apply these principles, and to acquire a good working vocabulary, portions of Old Testament History are read, and translations made from English into Hebrew. The text-book used is Prof. Green's Elementary Hebrew Grammar.

ENGLISH LANGUAGE, COMPARATIVE PHIL- OLOGY.

Professors Francis A. March (Prof. Emeritus), F. A. March, Jr., J. W. Tupper, and Mr. Farquhar.

For training in speaking and writing English correctly every student is required to hand in two themes in every term of his college course after the Freshman year. Many of them are read in class and criticized as time allows. In this work professors of all departments take part. It is desired that students in each department shall write on subjects connected with it in the words and phrases current among experts, and know the precise meaning of these words and phrases. In these matters the professors in each department are authorities. During the Freshman year a new course is being presented in the theory and practice of English Composition. The theory is taught throughout the year in lectures and recitations,

and the practice obtained in daily themes, some of which are written in the class-room under the eye of the professor. Longer themes are prepared at intervals of a fortnight, and regular consultation hours are appointed at which each student is required to discuss his work with his instructor.

In addition to this the professors of foreign languages recognize that translation into English is training in English as well as in the foreign languages, and written translations are required partly in the interest of English study.

The study of the language in literature is different from the training just described. Its immediate purpose is the interpretation of masterpieces, the rethinking of the thoughts of master minds. It needs all the philological knowledge which can be had to clear up and illuminate the language. Such study also furnishes the materials and invites the inductions of systematic and historical philology and theories of the growth of literature. It must be largely comparative study, and in the Classical Course it is thought best to defer it until the student has become acquainted with other languages. This work is given as one of the electives during the Junior and the Senior years. It is begun in the first term of Junior year with the study of Bacon's Essays. Anglo-Saxon is taken up in the second term of the Sophomore year, and is continued in the Junior year in connection with the study of Milton, during the second term.

In the third term Shakespeare is studied, and recited four times a week, and there are optional courses and prize examinations on Shakespeare in general, and English before Chaucer.

In the Senior year courses in Shakespeare and in the English Romantic Poets are given during the first term. In the second term a course in English Novels is given, and the study of the Romantic poets continued. Four hours a week of the third term are devoted to Comparative Philology, as a required study, summing up the results of former special studies and arriving at laws of language in general. For further details see page 64.

MODERN LANGUAGES.

Professor Raschen and Messrs. Hopkins and Hunt.

The work of this Department is based upon the view that the aim of the American College is not to make specialists but to give a many-sided, well-rounded education; hence the different branches of the curriculum must in their very nature be co-ordinated with each other and the time allotted to each limited. It follows from this co-ordination and from the limited time allotted to each of the several branches, that in the pursuit of linguistic studies in the modern Continental languages only such a method is possible that permits in the time given to reach the result which it is proposed to achieve. This result is simply to give to the student the beneficial mental development resulting from a thorough linguistic training; a result formerly reached by the exclusive study of the dead languages and now sought by the study both of ancient and modern languages, either in conjunction, as in the Classical and Latin Scientific courses, or by the modern languages exclusively, as in the General Scientific and Technical courses. And, secondly, to acquaint the student with the masterpieces of modern literature, scarcely, if at all,

inferior in literary value, and certainly not less important for the proper equipment of the cultivated scholar, than the works of the great masters of Greek and Latin.

We propose—

(a) To teach the present status of the grammar and vocabulary of the languages studied.

(b) To show how they acquired their present status.

(c) To introduce the study of the best writers of Germany and France in a progressive series, with special attention to contemporary literature, and, in a limited degree, to extend the same method to the literature of Spain and Italy.

(d) To trace the development of literature and to give an account of the principal writers whose works are studied.

Italian or Spanish is offered as an elective in the second term of the Junior year.

Der Deutsche Verein is an organization of students and officers interested in the study of German language and literature, and of German life and culture. Meetings are held fortnightly on Friday. Advanced students and others who desire to keep up their knowledge of German are invited. The programs consist chiefly of conversations, addresses and the singing of German songs.

While the required courses in the Modern Languages are chiefly linguistic, the elective courses are designed to promote study in the field of Literature. There will be lectures by the instructor, reading and critical study of assigned texts, discussions and papers on the work and author studied.

SYNOPSIS OF COURSES.

GERMAN I. *Elements of German.*—Prescribed for Sophomores in the Classical Course. Third term, two hours.

This course in conjunction with Course II aims to give a thorough and accurate training in the rudiments of Grammar, to familiarize the student with spoken German as well as written; for this reason the inductive method will be employed, using German almost entirely from the beginning. In this manner the student is quickly made to acquire both 'Sprachgefuehl' and 'Sprachmaterial' so as to read German with ease. Composition and translation of easy graduated texts form part of the exercises each hour.

GERMAN II. *Elements of German.*—Prescribed for Juniors in the Classical Course. First term, three hours.

This course is a continuation of Course I.

GERMAN III. *Advanced German.*—Prescribed for Freshmen in the Latin Scientific Course. Three terms, four hours.

The study of accidence, syntax and etymology will form part of this course. In connection with this there will be oral practice in German and Composition as well as reading of advanced texts. These texts will be selected so as to vary the reading and to acquaint the student with a variety of style of German writers. In addition to this an easy text will be assigned for outside reading during the second and third terms.

GERMAN IV. *Selected Works of Lessing.*—Prescribed for Sophomores in Latin Scientific Course. First and second terms, two hours.

This course provides for a study of the life of Lessing with parallel readings from his works. There will be occasional lectures on the literary, historical, and aesthetic aspects of the works studied. An English biography of Lessing will be used.

GERMAN V. *Schiller and Goethe.*—Open to those who have completed two of the preceding courses. Two hours throughout the year.

The lives and several of the principal works of these authors will be studied. Lectures on the various aspects of these

works are given to supplement these studies. Reports on assigned collateral reading will be required.

GERMAN VI. *History of German Literature*.—From the earliest beginnings to the end of the eighteenth century. Open to those who have completed Course IV or V. Two hours throughout the year.

In this course Robertson's *History of German Literature* will be used as a reference book. The readings will be from Mueller's *German Classics*.

GERMAN VII (alternates with German VI). *Goethe's Faust*.—The reading and interpretation of *Faust*, the First Part in its entirety, the Second Part in selected portions. The study will comprise its genesis, significance, ethics, and artistic character. It is open to those who completed the course on Goethe.

FRENCH I.—For beginners. Prescribed for Sophomores in the Classical and Latin Scientific courses. Two hours throughout the year. Fraser and Squair's *Grammar*; composition; sight-reading and translation of easy prose; careful drill in pronunciation.

FRENCH Ia.—Continuation of foregoing; thorough study of irregular verbs; grammar; composition; translation and sight-reading of more difficult prose selections from Lazare's *Premières Lectures* or selected stories from Dumas fils, Halévy, Lavedan, etc.

FRENCH Ib.—Grammar and composition continued; translation and sight-reading from Guerlac's *Standard French Authors*; discussion of the various works of the authors represented.

FRENCH II.—Readings in French history from Lavis's *Histoire de France*; discussions.

FRENCH IIa.—The Novel. Selections from Dumas' *Les Trois Mousquetaires* or Hugo's *Notre Dame*.

FRENCH IIb.—The School of the Realists. Readings from Zola's *Débauche*. Collateral reading in *History of French Literature*.

FRENCH III.—The Classical Drama—Tragedy. Study of the works of Corneille, Racine and Rotrou. Lectures.

FRENCH IIIa.—The Classical Drama—Comedy. Works of Molière.



ASTRONOMICAL OBSERVATORY.

FRENCH III*b*.—Rise of the Romantic School. Hugo's Ruy Blas or Hernani.

FRENCH IV.—The Literature of the XVIth Century. Selections from Ronsard, Marguerite de Valois, Marot, Jodelle, etc. The Pléiade.

FRENCH V.—Historical Grammar Development of French from Latin.

SPANISH.—This course is designed to give the elements of Spanish grammar, and to enable the student to translate easy prose from English into Spanish and *vice versa*.

ITALIAN.—A course similar to the above is offered in Italian.

MATHEMATICS.

Professor Hardy and Mr. Smith.

Soon after entrance all Freshmen are carefully examined in the preparatory Mathematics and classified according to the excellence of their preparation. The best prepared are grouped together as Division A and the rest as Division B. Divisions A and B are further subdivided so as to secure daily instruction to each student. During the first term of Freshman year both divisions take Algebra four hours per week. During the second term Division A takes Algebra four hours per week and Division B takes Algebra two hours and Geometry two hours per week. During the third term Division A takes Trigonometry four hours per week and Division B takes Algebra two hours and Geometry two hours per week.

During the Sophomore year Division A takes Mathematics four hours per week, completing Trigonometry and beginning Plane Analytical Geometry. Division B takes Trigonometry four hours per week. During the second term Division A takes Plane and Solid Analytic Geom-

etry four hours per week and Division B takes Plane Analytic Geometry for the same time.

The course in Analytic Geometry is begun by drawing a large number of curves from their equations, so that from the first the student may see that the properties of a curve may be studied from its equation. After that the demonstrations of the propositions usually given in the analytic geometries are constructed with the same strictness of reasoning, and every step in them is proved with the same logical rigor as in Euclid. It is hoped that at the conclusion of his demonstration the student shall see clearly and at once the meaning of every symbol in the equation obtained, and shall be perfectly sure of the truth of his conclusion. Training in clearness and accuracy of thinking is regarded as of the highest importance.

Calculus is elective for four hours per week throughout the Junior year. During the first term the Differential Calculus is taken, during the second the Integral Calculus and during the third term the application of the Calculus to the study of Loci. Mathematics is elective for two hours per week during the Senior year. During the first term a course in Differential Equations is given and during the rest of the year a course in the Theory of Functions. The course in the Senior year is only open to those who have had Calculus.

ASTRONOMY.

Professor Hardy and Mr. Smith.

The study of Astronomy is begun in the first term of the Senior year and continued through the second and third terms. It is illustrated by practical work in the

Observatory with the various astronomical instruments. The course includes a thorough study of the points and lines of the Celestial Sphere; a short discussion of the construction and use of the principal astronomical instruments; of Parallax and Refraction, and of the methods of determining Latitude, Time and Longitude. Then follows a careful study of the earth as a member of the Solar System; of the Moon; of the Sun, including the Spectroscopy of the Sun; of Eclipses; of the general laws and construction of the Solar System, and of the Planets and their Satellites. This is followed by a brief discussion of the methods of determining the Sun's Horizontal Parallax and a fuller discussion of Comets, Meteors, and the fixed Stars, including the Spectroscopy of these bodies. The course ends with a study of the general structure of the Stellar Universe and a discussion of the Cosmogony and the Nebular Hypothesis.

PHYSICS.

Professor Moore.

The studies in this Department in all the courses occupy four recitations or lectures a week for a year, beginning with the third term Sophomore year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments and laboratory work for technical students. In other subjects the study of the text-book is accompanied with illustrative lectures, aided by a valuable collection of apparatus and charts, which is continually enlarged and improved.

The course begins with an experimental demonstration of the fundamental principles of Statics and Kinetics

in connection with a mathematical treatment of the subjects. This is followed by very full lectures on Heat, Magnetism, Electricity, Sound, and Light. Daily written and oral examinations impress the laws and facts thus presented upon the student.

For the advanced studies of the technical courses in Analytical Mechanics and allied topics of Mechanical and Electrical Engineering, see pages 81 and 95.

CHEMISTRY.

Professor Hart and Messrs. DeLong and Chase.

The study in this Department begins with a course of lectures on General Chemistry, combined with the study of a text-book. In connection with these lectures each student is required to work in the Laboratory under the direction of the Professor. In the Senior year an elective course in Qualitative Analysis is also offered. Students in full standing who receive permission from the Faculty may also work in the Laboratory outside of recitation hours, if they so desire.

BIOLOGY.

Professor Davison and Mr. Bailey.

The work of this Department occupies all of the ten rooms in Jenks Biological Hall. A general laboratory, forty by sixty feet, and four special laboratories well equipped with twentieth century apparatus, in addition to an herbarium and vivarium, provide ample facilities for pursuing practical studies on plant and animal life.

The courses in Biology, excepting Sanitary Biology required for the Civil Engineers, are elective only, and consist of work throughout the Junior and Senior years.

They are open for election to Classical, Latin Scientific, and General Scientific students. In order to meet the double purpose of a professional preparation and general culture, the courses are so arranged as to provide in each the special knowledge required without sacrificing the ends of general culture and discipline, which is sought in all the undergraduate courses. Those not wishing to take the complete course, and yet desiring to know the meaning of the life forms, the relation of plants and animals to one another and especially to man, and to understand the factors and methods of evolution, should pursue the work throughout the Junior year. One may, however, begin his biological studies at any time prior to the second term of the Senior year. The work of the second and third terms of the Senior years is designed for those expecting to enter the professions of teaching or medicine.

The following eight courses in Biology occupy one term each:

Course I. Botany.—Two periods are devoted to this during the first of the Junior year. The time is largely devoted to the study of the morphology and life history of the lower plants from bacteria to ferns, the physiological processes in plants, and the evolution of species. The relation of insects to plants and plants to man, together with the problem of breeding new varieties, are some of the practical topics considered. Excellent advantages for pursuing this branch are offered by the well-equipped laboratory and extensive College Herbarium containing representatives of nearly all the mosses, ferns and flowering plants found in Pennsylvania in addition to hundreds of species from other regions of North

America. In its creation Dr. Porter was actively engaged for nearly half a century. It was gradually built up by personal collection, gift, exchange, and purchase, and well represents the growth of this branch of the science in the United States during this period of time. It contains the type-specimens of the species described by him. A library, also, rich in the literature pertaining to the subject, has been accumulated in the same way, and the letters received in correspondence with distinguished naturalists have been preserved.

Course II. Mammalian Anatomy.—In the first term of the Junior year, two periods per week are devoted to this branch. It enables the student to secure a definite idea of the structure of his own body, to understand some of the evidences of evolution of animals and realize the unity of structure of the animal kingdom. A dissection of parts of the cat or dog together with studies and demonstrations on certain dissected mammals with special reference to the nervous system makes an excellent preparation for the study of Psychology and Philosophy. An introduction is likewise given to the natural history of the highest group of the vertebrates.

Course III. Vertebrate Zoology.—Four periods per week are given to this subject the second term of the Junior year. The laboratory work involves a study of one or more types representing each of the five classes of vertebrates.

The evolution of the various organs and systems and the origin and development of certain forms of animals together with their habits and natural history furnish fertile topics for recitations and lectures. This course,

in connection with the preceding one, gives the student a general survey of the entire animal kingdom.

Course IV. General Biology.—Four periods per week are devoted to this subject in the third term of the Junior year. The morphology and life history of a few types of the invertebrates are studied with a view to understand the processes of life and the relation of one form of life to another. Darwinism and the allied problems struggle for existence, parasitism, etc., are discussed, and considerable attention is given to the interdependence of animals and plants, and insects and birds. A well-equipped laboratory with microscopes, aquaria and terraria, offering access to numerous specimens living and preserved, furnishes every advantage to those pursuing this course.

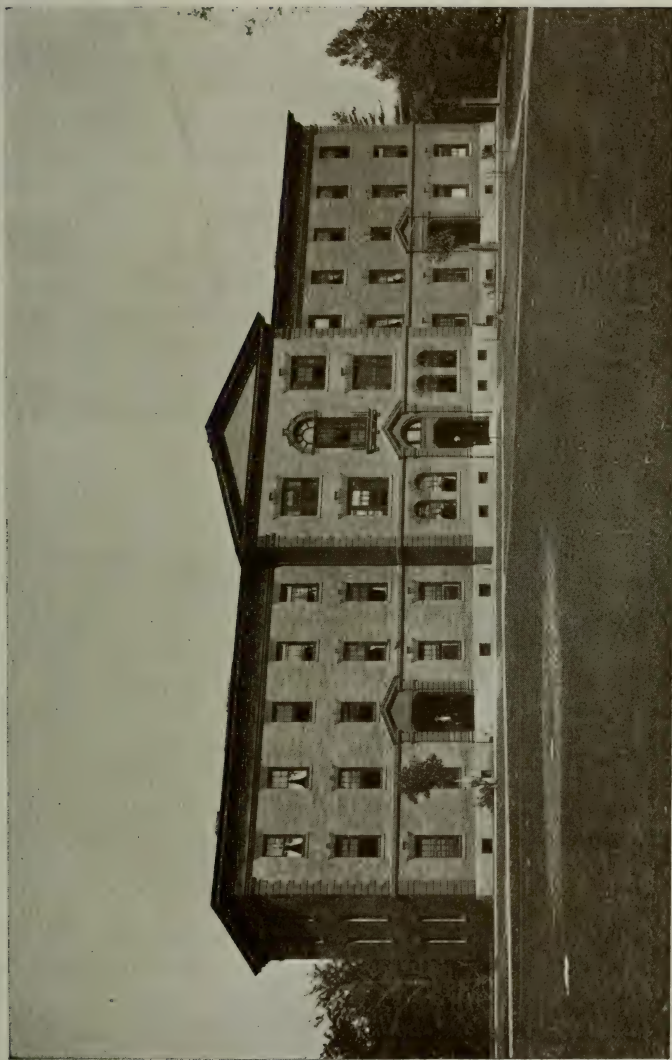
Course V. Bacteriology and Hygiene.—This work occupies four periods per week during the first term of the Senior year. A considerable amount of laboratory work, supplemented by investigations in a well-equipped library, and by lectures and demonstrations, is applied to a study of the form, habits and use of bacteria, their relation to agriculture, to industrial processes and to disease. The cause and prevention of disease, including disinfection, disposal of sewage, sanitary analysis of water, and natural and artificial immunity, are treated in the light of the twentieth century knowledge. This course must be preceded by Course I, II, or IV.

Course VI. Physiology.—This occupies four periods per week in the second term of the Senior year. The laboratory work consists of the performance of certain experiments and a microscopic study of the chief organs in man.

The recitations and lectures are devoted chiefly to the physiological problems relating to the digestive, vascular, respiratory, excretory and nervous systems. Those electing this branch must have pursued previously either Course II, IV or V.

Course VII. Embryology and Histology. — These branches occupy six periods per week during the last term of the Senior year. The maturation and fertilization of the egg of *Ascaris*, the segmentation of the egg and the formation of the germinal layers in fish and amphibians, and the origin and early development of the chief organs in chick embryos, and the derivation and function of the fetal membranes in birds and mammals constitute the laboratory work. Discussion of these subjects, together with certain questions in cytology, such as the nature of the germ plasm, germinal selection, and heredity, occupy the hours of recitation. A brief study of the chief tissues of some mammal is also made. Each student is required to fix, harden, embed, section, stain and mount material for microscopic work. Twenty compound microscopes, each equipped with three objectives triple nose piece, and full substage apparatus, in addition to automatic and sliding microtomes, water-baths, incubators, etc., offer excellent opportunities to those preparing for medicine or special biological work. Either Course II or III, and Course VI are required as a preparation for this course.

Those completing the above courses in biology in a satisfactory manner, together with the required number of hours in Chemistry and Physics, are granted certificates admitting them to the second year's class in many medical schools.



MARTIEN, FAYERWEATHER AND POWELL HALLS.

Course VIII. Sanitary Biology.—This is required two periods per week for the Civil Engineers and Chemists in the third term of the Junior year. By means of the Sedgewick-Rafter apparatus and microscopes a practical study of the organisms affecting water supplies is made. The relation of bacteria to disease, the presence and significance of bacteria in water and milk, and the quantitative and qualitative analysis of spring, well and river waters are the chief subjects investigated. A laboratory well equipped with sterilizers, incubators, Pasteur dishes, Sedgewick-Rafter apparatus and microscopes magnifying from 50 to 1000 diameters enables the students to carry on much practical work.

GEOLOGY.

Professor Peck.

This branch of natural science is offered as an elective at the beginning of the Junior year to students pursuing the Classical, Latin Scientific, and General Scientific courses, and may be continued to the end of the Senior year.

The course is continuous and each term's work depends upon that which has preceded. It is desirable that students electing this subject should do so for at least two terms and that they should be familiar with the elements of Physics, Chemistry, and Biology. For the work of the Senior year, a knowledge of these subjects is required.

JUNIOR YEAR.

The work of the Junior year begins the first term, with a course of four periods per week, covering Dynamical, Structural and Physiographical Geology. Instruction is given in part by text-book and in part by lec-

tures illustrated by stereopticon views, two thousand of which are in the possession of the Department. Frequent excursions are made into the region about Easton, which abounds in examples illustrating both structure and physiography.

The work of the first term is followed in the second by a course of two periods per week in Historical Geology. The first part of the term is devoted to a study of the stratigraphic sequence of rocks as exhibited in the geology of the eastern part of the State of Pennsylvania and of New Jersey, together with such general discussions of the character, distribution, and fossil contents of the same formations found elsewhere as time will permit. The latter part of the term is devoted to a somewhat detailed discussion of the principles underlying the classification of fossil forms, particularly the invertebrates, and to a study of the fossils themselves, an excellent working collection of which is placed at the disposal of the students.

During the third term a course of two periods per week is offered consisting exclusively of field work. The student is required to do the traverse work of a given area near Easton, and at the close of the term to present a colored map and a section or sections of that area, together with accurately labeled specimens of the different kinds of rock found within it. The map, section, and specimens are to be accompanied by a brief, written description of the geology of that area.

SENIOR YEAR.

MINERALOGY AND LITHOLOGY.

The work of the Senior year is open only to those students who have pursued the courses offered in the Junior

year, and is intended for those desirous of securing a more thorough grounding in the subject preparatory to teaching it, or for any who may be looking forward to geology as a profession and therefore to post-graduate work in some university, leading to the degree of Ph.D.

The course will consist of two periods per week extending through the entire year and will begin in the first term with a discussion and an application of the principles of Crystallography, both geometrical and physical. For this work the department is equipped with a study collection of crystals; numerous models in wood and glass; five reflecting goniometers; a polariscope; three polarizing microscopes; and an excellent projecting apparatus for demonstrating all of the different phases of optical crystallography and for the projection of thin rock sections on the screen.

The second term is devoted in part to a brief systematic review of the more important mineral species, special emphasis being placed on the rock-formers, and is accompanied by a short course in determinative mineralogy. The latter part of the term is occupied in a somewhat detailed discussion of the principles underlying the classification of rocks, more particularly the igneous, and in acquiring a more intimate knowledge of them, both macroscopically and microscopically, for which purpose over five hundred hand specimens with their corresponding thin sections are available.

This work is continued in the third term but in the form of applied rather than laboratory petrography and takes the form of special field work in Geology. The student is assigned a certain area, and required at the end of the term to present a colored geologic map

of that area together with a profile section showing the structure; also a hand specimen of the different varieties of rocks found within it, and when these are of metamorphic or igneous origin, they are to be accompanied by their corresponding thin sections and by an accurate and detailed description of their microscopic characteristics.

The text-books used in pursuing the above courses are: Fairchild's edition of Le Conte's Elements of Geology; Kemp's Handbook of Rocks; Harker's Petrology for Students; Moses and Parson's Mineralogy, Crystallography and Blowpipe Analysis; and Wood's Palaeontology.

SYNOPSIS.

CLASSICAL COURSE.

FRESHMAN YEAR.

First Term.

	Hours.
ALGEBRA.—A brief review of the requirements of admission and a continuation of the study of equations.....	4
GREEK.—Xenophon: Memorabilia; prose composition; classical geography.....	4
LATIN.—Livy: Books I and XXI; Latin Prose; Early Roman History, and the second Punic War.....	4
ENGLISH.—English Composition.....	2
HYGIENE.—Lectures upon the Essentials of Health.....	1
THE BIBLE.—The Bible in English and Coleman's Geography of the Bible.....	1

Second Term.

ALGEBRA AND GEOMETRY.—Plane and Solid.....	4
GREEK.—Herodotus: Select passages; old Greek life.....	4
LATIN.—Horace: Odes; Prosody: Latin Prose.....	4
ENGLISH.—English Composition.....	2
ELOCUTION.....	1
THE BIBLE.—The Bible in English.....	1

Third Term.

Hours.

ALGEBRA completed, Solid Geometry completed, Division B. Geometry, Trigonometry, Division A	4
GREEK.—Homer: The Iliad; select passages from the first six books; Greek literature	4
LATIN.—Horace: Satires and Epistles; Roman Antiquities. Throughout the year a review of Syntax and Etymology; exercises in written translation	4
ENGLISH.—English Composition	2
ELOCUTION	1
THE BIBLE.—The Bible in English	1
Declamations, Themes, and Forensics throughout the year.	

SOPHOMORE YEAR

First Term.

Plane and Spherical Trigonometry, Mensuration, and Plane Analytical Geometry, Division A. Trigonometry, Divi- sion B.	4
GREEK.—Homer: The Iliad; select passages from Books XVIII to XXIV; Homer and the Bible compared	4
LATIN.—Cicero: DeOratore; the subjunctive mood; Roman History from the Gracchi to the Empire	4
ENGLISH.—Trench on Words	2
FRENCH.—French I	2
ELOCUTION	1
THE BIBLE.—The Greek Testament	1
Declamations, Themes, and Forensics.	

Second Term.

Plane Analytical Geometry, Division B. Plane and Solid Analytical Geometry, Division A	4
GREEK.—Plato: The Apology and Crito; select passages	4
LATIN.—Christian Latin: March's Latin Hymns; derivation and formation of words; early Roman literature	4
ENGLISH.—Anglo-Saxon	2
FRENCH.—French Ia	2
ELOCUTION	1
THE BIBLE.—The Greek Testament	1

CLASSICAL COURSE.

Third Term.

	Hours.
PHYSICS.—Elementary Mechanics.....	4
GREEK.—Aeschines against Ctesiphon.....	4
LATIN.—Cicero: DeOfficiis; Topics in the History of Philoso- phy.....	2
FRENCH.—French Ib.....	2
GERMAN.—German I.....	2
CHEMISTRY.....	2
ELOCUTION.....	1
THE BIBLE.—The Greek Testament.....	1
Declamations, Themes and Forensics throughout the year.	

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism and Electricity.....	4
GERMAN.—German II.....	3
THE BIBLE.—The Epistle to the Romans in Greek.....	1

ELECTIVES.

One subject to be chosen from each group.

MATHEMATICS.—Calculus.	}	4
GREEK.—Demosthenes.			
GEOLOGY.			
ENGLISH.—Bacon.			
CHEMISTRY.—Lectures and Laboratory Work.	}	2
BIOLOGY.—Botany.			
FRENCH.—French II.			
HISTORY.—English History.			
LATIN.—Tacitus: Agricola; Roman Literature of the Silver Age.	}	2
BIOLOGY.—Mammalian Anatomy.			
GERMAN.—German V (for Latin Scientific Course).			

Second Term.

PHYSICS.—Acoustics, Optics.....	4
PHILOSOPHY I.....	3
THE BIBLE.—The Epistles to the Romans in Greek.....	1

ELECTIVES.

Hours.

One subject to be chosen from each group.

ENGLISH.—Milton and Anglo-Saxon.		}	..... 4
(If English is not chosen one subject must be taken from each of the following sub-groups.)			
GEOLOGY.	}	..... 2	}
FRENCH.—French IIa.			
GREEK.	}	..... 2	}
GERMAN.—German V.			
LATIN.—The Drama.	}	..... 2	}
CHEMISTRY.			
BIOLOGY.—Vertebrate Zoology.		}	..... 4
MATHEMATICS.—Calculus.			
(If neither of the above subjects are chosen the following must be taken.)		}	..... 4
HISTORY.—Colonial History of the United States			
HISTORY.—English History.....	2	}	..... 4
HISTORY.—English History.....	2		

Third Term.

HISTORY.—Constitutional History of the United States.....	2
PHILOSOPHY II.....	2
PHILOSOPHY I.....	3
THE BIBLE.—The Epistles to the Romans in Greek.....	1

ELECTIVES.

One subject to be chosen from each group.

MATHEMATICS.—Calculus.		}	..... 4
GREEK.			
ENGLISH.—Shakespeare and Anglo-Saxon.		}	..... 4
GEOLOGY (2); CHEMISTRY or GERMAN.—German V (2).			
BIOLOGY.—General Biology.		}	..... 4
(If Biology is not chosen one subject must be taken from each of the following sub-groups.)			
FRENCH.—French IIb.....	2	}	..... 4
LATIN, JUVENAL.—Roman Archaeology	} ... 2		
GERMAN.—German V.		2	}	..... 4

Declamations, Themes and Forensics throughout the year.

SENIOR YEAR.

First Term.

	Hours.
ASTRONOMY.....	4
PHILOSOPHY, III.....	3
CHURCH HISTORY.—Conflict of Christianity and Heathenism	1

ELECTIVES.

One subject to be chosen from each group.

ENGLISH.—English Romantic Poets.	}	.....	4
(If English is not chosen one subject must be taken from each of the following sub-groups.)			
HISTORY.—General Constitutional History.	}	.....	2
PHILOSOPHY, VI.			
CHEMISTRY.	}	.....	2
INTERNATIONAL LAW.			
MATHEMATICS.—Differential Equations.	}	.....	2
GERMAN.—German VI or VII.			
BIOLOGY.	}	.....	4
ENGLISH.—Shakespeare.			
(If neither of the above subjects are chosen, one subject must be taken from each of the following sub-groups.)	}	.....	2
GREEK.			
FRENCH.—French III or IV.	}	.....	2
GEOLOGY.			
LATIN.—Lucretius.	}	.....	2

Second Term.

PHILOSOPHY, IV.....	3
POLITICAL ECONOMY.....	2
CHURCH HISTORY.—Conflict of Christianity and Heathenism	1

ELECTIVES.

One subject to be chosen from each group.

HISTORY.—Constitutional History of the United States.	}	2
MATHEMATICS.—Theory of Functions.			
GERMAN.—German VI or VII.			
GEOLOGY.			

Hours.

ENGLISH.—English Fiction.	} 4		
BIOLOGY.—Physiology.				
(If neither English nor Biology are chosen one subject must be taken from each of the following sub-groups.)				
GREEK.				
FRENCH.—French IIIa or IV.	} 2		
LATIN.—Inscriptions.....			2	
ENGLISH —English Romantic Poets.	} 4		
(If English is not chosen one subject must be taken from each of the following sub-groups.)				
PHILOSOPHY, VI.			} 2
BLACKSTONE.				
CHEMISTRY.	} 2		
ASTRONOMY.				
HISTORY.—General Constitutional History.	} 2		
HEBREW.				

Third Term.

PHILOSOPHY, V.....	2
PHILOLOGY.....	3
THE BIBLE.—History of the English Bible.....	1

ELECTIVES.

One subject to be chosen from each group.

HISTORY.—Constitutional History of the United States.	}	... 2
MATHEMATICS.—Theory of Functions.		
GERMAN.—German VI or VII.		
GEOLOGY.		
ENGLISH.—English Literature.	} 4
BIOLOGY.—Physiology.		
(If neither English nor Biology are chosen one subject must be taken from each of the following sub-groups.)		
GREEK.		
FRENCH.—French IIIa or IV.	} 2
LATIN.....			2

ENGLISH.—English Romantic Poets.

(If English is not chosen one subject must be taken from each of the following sub-groups.)

PHILOSOPHY, VI. }

BLACKSTONE. }

CHEMISTRY. }

ASTRONOMY. }

HISTORY.—General Constitutional History. } . 2

HEBREW. }

POLITICAL ECONOMY. }

2

4

PARDEE SCIENTIFIC DEPARTMENT.

This Department was organized in 1866, in accordance with the conditions of a gift from Ario Pardee, Esq., of Hazleton, Pa. The original organization has been from time to time greatly enlarged and extended, largely through the continued munificence of the founder. There are at present two General Courses of Study, Latin Scientific and the General Scientific, and four technical courses.

LATIN SCIENTIFIC COURSE.

This course, which leads to the Degree of Bachelor of Philosophy, was designed to meet the wishes of those who desire to pursue a course of liberal study, but will not study Greek. It therefore is the same as the Classical Course except that the time devoted to the study of Greek in that course is given to the pursuit of studies mainly of a scientific character, but throughout the general course of this school great importance is paid to the study of the English language under the special direction of Professor Francis A. March, Jr. In the Freshman year the substitutes for Greek are German and English Language and Composition, while in the Sophomore they are various English studies. In the third term, Sophomore year, French is begun and continued through the first and second term of the Junior year. The method of instruction in each Department is fully dealt with under the course of study in the General Scientific Course. The synopsis which follows will sufficiently explain any other peculiarities of the course.

SYNOPSIS.

LATIN SCIENTIFIC COURSE

The course of study is the same as the Classical Course except as follows:

FRESHMAN YEAR.

German (German III) is substituted for Greek, four hours a week being given to this subject during the three terms.

SOPHOMORE YEAR.

First and Second Terms.

The Bible is read in Latin instead of Greek. English and German are substituted for Greek, two hours a week being given to each. The English study for the First Term is Bunyan and for the Second Term, Spenser.

Third Term.

The Bible is read in Latin instead of Greek. English (Chaucer) is substituted for Greek.

JUNIOR YEAR.

First Term.

The Bible is read in Latin instead of Greek. English History is substituted for German.

After First Term, Junior year, the schedule for the Latin Scientific Course is the same as the Classical, except that during the Second and Third Term, Junior year, the Bible is read in Latin instead of Greek.

(For schedule of study of the Classical Course see pages 52-58.)

GENERAL SCIENTIFIC COURSE.

This course leads to the degree of Bachelor of Science, and consists of a curriculum in which Mathematics, the Modern Languages and their Literatures, especially English, and the Natural and Physical Sciences receive principal attention. It includes, however, the more general studies of the Arts Course, such as History, Logic and Rhetoric, Mental and Moral Philosophy.

The Mathematics of this course is the same as the Mathematics of the technical courses. French and German are begun in the Freshman year and are pursued with great breadth and particularity. The student's attention is directed to the study of the literatures of these languages in the endeavor to supply, so far as may be possible, the liberal culture ordinarily to be obtained only by the classical studies, but particular stress is laid upon the very thorough-going course in English, a description of which follows:

ENGLISH LANGUAGE AND LITERATURE.

Professors Francis A. March (Prof. Emeritus), F. A. March, Jr., J. W. Tupper and Mr. Farquhar.

In the Freshman Class there is, first of all, a thorough course in English composition. The theory is taught in lectures and recitations, and the practice obtained in daily themes, in longer fortnightly themes, and in frequent consultation between the student and the instructor. Then before the more advanced work in Philology is undertaken, other languages are studied. French and German (as in the Classical Course Latin and Greek) come in as parts of the organized scheme of linguistic study, and are so pursued as to become a means of special culture in English.

Sophomores take up in the first term Trench on the Study of Words and Bunyan's Pilgrim's Progress, in connection with which English Grammar is studied. The Grammar subjects for this term are Syntax, Grammatical Equivalents, Rhetorical Forms, and Historical Elements. On each, daily recitations are heard, and the lessons learned are constantly illustrated by the text under review. The whole story of Pilgrim's Progress

is read, the allegorical meaning called for part by part, and salient doctrinal points noticed.

The staple of daily drill, however, is found in connection with the minute and careful treatment of selected passages. These are studied clause by clause and word by word. The Syntax is first made clear, then words are taken up; synonyms and phrases grammatically equivalent are brought into comparison, and the student is taught to feel an intelligent preference for one or another form of expression, as it may promote perspicuity, liveliness, or other traits of a clear and vigorous style. In the treatment of single words, also, the German and French are called for, and as far as practicable in the Scientific Course the Latin. The laws of change, the derivation, the root, the radical idea, kindred words, the primary meaning, changes in the meaning with the connection of thought, together with such other lines of inquiry as are suggested by Trench, as indications of history, character, moral suggestions, and the like; poetical forms of frequent occurrence are also specially noted, and the collocation of words discussed, both with respect to syntax and the rythmical cadences of speech.

In connection with this daily drill, the life and times of Bunyan are discussed in writing by each member of the class, and his diction compared with that of other standard works, and especially with the Bible. In this part of the work students are directed by questions and references, but are expected to look up information everywhere.

This system of daily drill on the best passages, reports on other readings, and weekly essays on topics growing out of the discussions of the life and times of the author,

is found to lead the student on by sure and rapid steps to an intelligent appreciation of the author's works, his place in literature, and on the whole to the best mastery of his genius.

The same general plan is pursued progressively through the course, with changes, from term to term, in the topics embraced in the drill.

The Sophomores (second term) read Spenser's *Faerie Queene*, with the same concentration upon representative passages, the special drill topics being derivation, romance of chivalry, and Spenserian stanza. During the term, two hours each week are given to the study of Anglo-Saxon. In the third term Chaucer (*Canterbury Tales*) is the basis of work. Several of the tales are read and discussed, but the famous Prologue is the special subject of study and philological drill. All the results of previous works are kept constantly in review. This is an emphatic feature of the method. "A line of questions once begun is always kept up." The special drill topics this term are Phonetic Elements, Orthographic Elements, a review of Historical Elements, and Criticism of Uncertain Text. During the Junior and the Senior years the courses in English are elective.

The Juniors (first term) take for philological study selected essays of Bacon; they prepare reports and criticisms of others of his works, and of his character, life, and times, in weekly written papers. During the second term they read Milton's *Paradise Lost*. The philological study is mainly directed to the deduction of English words and forms from Anglo-Saxon. The paradigms and the text read are examined word by word in this view. Special objective points are Poetical Forms and

Epic Art. In the third term Shakespeare's play of Julius Caesar is read. The philological study is used mainly to clear up, enrich, and impress the thoughts of Shakespeare. The characters and the structure of the play are studied. Weekly written papers are required from each student upon selected topics connected with Shakespeare's life and times, his genius, his dramatic art and the like.

In the Senior year the first term is given to courses in Shakespeare, and in the English Romantic poets. In the second term the course in English Romantic poets is continued, and a course in English Novels given. In connection with the latter course a representative work of a representative author, selected by the professor, is studied with a view to more extended researches in philology and criticism, and to one elaborate essay by each member of the class, to be handed in at the close of the term. What is known as the F. A. March Prize is awarded on the basis of this term's work. During the third term, Senior year, Professor Whitney's Lectures on Language are studied. The work of the entire course in Comparative Philology is reviewed and co-ordinated, and advanced work in English literature pursued by means of lectures and class discussions.

HISTORY.

The President and Professor Roberts.

All the courses in History and Political Science described under the Classical Course are also open to students of this Department.



JENKS BIOLOGICAL LABORATORY.



APPROACH TO LAFAYETTE COLLEGE.

SYNOPSIS.

GENERAL SCIENTIFIC COURSE.

FRESHMAN YEAR.

First Term.

	Hours.
ALGEBRA.....	4
ENGLISH.—English Composition.....	2
CHEMISTRY.—Lecture and Laboratory Work.....	4
DRAWING.—Industrial Drawing.....	2
GERMAN.....	2
FRENCH.....	2
HYGIENE.—Lectures.....	1
THE BIBLE.—The Bible in English.....	1

Second Term.

TRIGONOMETRY AND MENSURATION.....	5
ENGLISH.—English Composition.....	2
CHEMISTRY.—Lecture and Laboratory Work.....	2
GERMAN.....	2
FRENCH.....	2
DRAWING.....	2
THE BIBLE.—The Bible in English.....	1

Third Term.

TRIGONOMETRY AND MENSURATION.....	2
ANALYTICAL GEOMETRY.....	3
ENGLISH.—English Composition.....	2
CHEMISTRY.—Elementary Organic Chemistry.....	2
FRENCH.....	2
GERMAN.....	2
DRAWING.—Projections.....	2
THE BIBLE.—The Bible in English.....	1

SOPHOMORE YEAR.

First Term.

ANALYTICAL GEOMETRY.....	3
DIFFERENTIAL CALCULUS.....	2

	Hours.
DESCRIPTIVE GEOMETRY.....	2
ENGLISH.—Trench on Words 2. Bunyan 2.....	4
GERMAN.....	2
FRENCH.....	2
CHEMISTRY.—Analytical Chemistry.....	2
THE BIBLE.—The Bible in French.....	1

Second Term.

CALCULUS.—Differential and Integral.....	5
DESCRIPTIVE GEOMETRY.....	3
ENGLISH.—Anglo-Saxon 2, Spenser 2.....	4
ENGLISH.—Spenser.....	2
CHEMISTRY.....	2
GERMAN OR FRENCH.....	2
THE BIBLE.—The Bible in French.....	1

Third Term.

PHYSICS.—Elementary Mechanics.....	4
ENGLISH.—Chaucer.....	4
BIOLOGY.—Sanitary Biology.....	4
CHEMISTRY.—Analytical Chemistry.....	2
THE BIBLE.—The Bible in French.....	1

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism and Electricity.....	4
HISTORY.—English History.....	2
ELOCUTION.....	1
THE BIBLE.—The Bible in German.....	1

ELECTIVES.

One subject to be chosen from each group.

GEOLGY.	}		4
ENGLISH.—Bacon.			
CHEMISTRY.	}		2
BIOLOGY.—Botany.			
FRENCH.			
HISTORY.—English History.			

Hours.

BIOLOGY.—Mammalian Anatomy.	}	2
GERMAN.		

After the First Term, Junior year, the schedule of study for the General Scientific Course is the same as the Classical Course except that during the rest of the Junior year the Bible is read in German instead of Greek. (For schedule of study of the Classical Course see pages 52-58.)

DEPARTMENTS OF ENGINEERING.

There are at present embraced in the curriculum three courses in ENGINEERING: Those of Civil, Mining, and Electrical Engineering. *At the opening of the next college year a course in Mechanical Engineering will also be inaugurated.* The location of the College is peculiarly favorable for such engineering schools. The city of Easton is a centre of railroads and canals, while bridges, foundries, pipe works for water and gas, cement works, rolling mills, repair shops, and many other industrial works are near at hand. Mines of iron, anthracite coal, and zinc are easily accessible, and extensive quarries of limestone, steatite, and slate are to be found in the immediate vicinity, and afford excellent opportunities for the study of mining operations. The demand, created by the great number of mechanical works in connection with these natural conditions and their development, for specially trained chemists has led to the establishment of a special course in CHEMISTRY.

COURSE OF INSTRUCTION.

The instruction in all the engineering courses is substantially the same during the first two years of the course, except that the electrical engineers substitute the study of physics and practical work in the physical laboratory for a part of the surveying, field, and office work of the other courses.

The following branches are common to all the courses:

MATHEMATICS.

Professor Hall and Messrs. Brasefield, Little and Colliton.

The attention of applicants for admission to technical courses is called particularly to the necessity of thorough preparation in Mathematics. All candidates should be thoroughly grounded in fundamental principles and operations, and it is strongly recommended that the preparatory Mathematics be carefully reviewed just prior to entrance. Readiness and accuracy is required not only in demonstrating propositions, but also in solving problems.

An accurate and ready knowledge of the preparatory work in Mathematics and a certain degree of mathematical maturity are indispensable to the successful prosecution of an Engineering course. Most of the men who fail in their College Mathematics, fail because they are not prepared before coming to college to perform the ordinary operations in Algebra, Geometry, and Trigonometry, rapidly and accurately. It is therefore quite essential that these subjects, and especially the Algebra, be thoroughly reviewed just before entrance.

While the study of Mathematics as mental discipline will not be overlooked; the object will always be to give the student that working knowledge of the subject that will enable him to apply, accurately and readily, mathematical principles to the solution of engineering problems.

Higher Algebra, Plane and Spherical Trigonometry, Logarithms, Mensuration, and Plane Analytical Geometry are given in the Freshman year. The following subjects are given in the Sophomore year: Analytical

Geometry of three dimensions, Differential and Integral Calculus, Differential Equations, and Least Squares.

ASTRONOMY.

In addition to a course in General Astronomy similar to that of the Classical Course, the Civil Engineers are given a course in practical Astronomy. This course keeps constantly in mind the needs of the Engineer. It includes a careful study of the Transformation of Astronomical Co-ordinates, a short discussion of Parallax and Refraction, a careful discussion of the construction, adjustment, and use of Astronomical instruments, of the methods of determining Time and Latitude by means of the Sextant, of Time by the Transit Instrument, of the methods of determining Longitude, and of the methods of determining Latitude by the Zenith Telescope. The students are required to make frequent observations with the Sextant and Transit Instrument.

SURVEYING.

Mr. Finch.

For Drawing, Laboratory, and Field work an "hour" consists of three hours; for other studies, of one hour.

This course, progressive and practical, is as follows:

FRESHMAN YEAR.

Third Term.

	Hours.
Lectures and Recitations.....	1
Summer School of Surveying. (In vacation.)	Three weeks.

SOPHOMORE YEAR.

First Term.

Lectures, Recitations, Field and Office Work. Theory of Chain, Compass, and Transit Surveying; Leveling; Adjustment and Use of Surveying Instruments.....	2
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Second Term.

Hours.

Lectures, Recitations, and Office Work. Pen and Colored Topography; Location and Construction of Roads, Streets, and Pavements.....	2
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Third Term.

Lectures, Recitations, Field and Office Work. Topographical Surveying; Map of Survey; Notes; Railroad Surveying.....	2
Summer School of Surveying. (In vacation.) Three weeks.	

JUNIOR YEAR.

First Term.

Lectures, Recitations, Field and Office Work. Railroad Reconnaissance and Location.....	3
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SENIOR YEAR.

Third Term.

Geodesy; Lectures, Recitations, Field and Office Work....	2
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DRAWING.

Professor Hall and Messrs. Brasefeld and Colliton.

Instruction in the Elements of Mechanical Drawing includes the use and testing of drawing instruments and materials, the drawing of lines, pen tinting and shading, flat tinting with brush, and wet and dry shading in ink and in colors, free-hand pen shading; plans of buildings, instrumental copying, traced copying, and transfer of drawings, blue prints, and working drawings.

In addition to text-book exercises, free-hand sketches and mechanical drawings in ordinary orthographic, isometric, and clinographic projections are made from models constructed for this purpose.

The drawing for the first two years is arranged as follows:

FRESHMAN YEAR.

First Term.

Elements of Mechanical Drawing.
Plane Problems. Free-hand Lettering.

Second Term.

Elementary Projections. Working Drawings.

Third Term.

Projections, including Shades and Shadows. Isometric and Cabinet Projections.
Model Drawing. Sketching.

SOPHOMORE YEAR.

First Term.

Descriptive Geometry. Plates.
Plotting Surveys.

Second Term.

Descriptive Geometry. Plates.
Pen and Colored Topography.

Third Term.

Machine Drawing.
Map of Survey.

All the students in the Engineering, Chemical, and General Scientific Departments take the first year's work in Drawing, as shown above. All the students in the Engineering Departments take the second year's course. During the Junior and Senior years the drawing in the Technical departments includes the following: Maps of Surveys, Graphic Statics, Constructions in Stone Cutting, Bridge Drawing, and graphical methods of locating faulted beds and veins.

MINERALOGY AND GEOLOGY.

Professor Peck.

Students in the Technical courses begin work in this Department the first term Junior and complete it the

second term Senior year, with the exception of the students in Electrical Engineering who take but one term, *viz.*, the first term of Junior year; and with the exception also of the students in Mining Engineering, who continue through the third term of Senior year, taking two periods per week in field work and in addition two periods per week in Mining Geology.

JUNIOR YEAR.

During the first term of this year two periods per week are devoted to a study of crystal forms in which Williams' Elements of Crystallography is followed. The course is abundantly illustrated with glass and wooden models, and each alternate exercise consists of a practicum at which well-crystallized minerals are studied, and their properties discussed. The latter part of the term is devoted to a brief discussion of the optics of crystals.

The second term's work consists in a brief course in Lithology during which Kemp's Handbook of Rocks is used as a text-book. A minimum course is required of the students in the Civil Engineering and Chemical courses, while for the Mining Engineers a more detailed discussion of the principles underlying the classification of rocks, more particularly the igneous varieties, is attempted, this work being supplemented by a careful study both macroscopic and microscopic, of the leading varieties. For this purpose five hundred hand specimens with their corresponding thin sections are available.

The third term's work consists in a systematic review of mineral species, more especial attention being paid to their chemical and crystallographic relations and to their mode of occurrence in nature. Instruction is given by lectures, which are illustrated by a study collection con-

sisting of some two thousand specimens, including the most important species. A course in determinative mineralogy supplements these lectures. The student is required to determine sixty minerals and to write out a description of each.

SENIOR YEAR.

The study of rocks and minerals in the Junior year is followed in the Senior year by a course in Geology. It is identical in most respects to the introductory course as planned in the Culture courses. The first term is devoted to Dynamical Structural and Physiographical and the second to Historical Geology. During the fall term the work of the class-room is supplemented by excursions into the neighboring region, and sufficient time is devoted to field work to enable each student to construct a six-mile section up and down the Delaware River from Easton.

As previously stated, students in Mining Engineering continue in this department through the third term Senior year. They are required to spend two afternoons per week in the field, in making a detailed study of a given area and to hand in at the end of the term a colored map showing the areal geology and at least one profile section showing the structure of this area. They are also required to collect hand specimens and where necessary to cut thin sections and to make accurate petrographical determinations of the different rocks found within that area. A written description of the geology and petrography of the area must accompany the map, section and hand specimens.

In addition to the field work, two periods per week are devoted to a discussion of the geology of ore deposits.

Instruction is given in the form of lectures, which are illustrated by stereopticon views, by specimens of ore and of the country rock in which the ore bodies are found, and by maps and diagrams showing the shape, mode of occurrence and geological relations of the ore bodies. Collateral reading is assigned in Kemp's Ore Deposits of the United States and Canada; Weed's translation of Beck's Nature of Ore Deposits and in Genesis of Ore Deposits published by the American Institute of Mining Engineers. The Monographs, folios and bulletins of the United States Geological Survey are also constantly in use.

Prominent among the teaching appliances of the department is a large projecting apparatus used in demonstrating the optical properties of minerals, to which there is a microscope attachment for throwing thin rock sections upon the screen; also five reflecting goniometers with horizontal circle; four petrographical microscopes; a polariscope, a mineral dresser, a lathe run by electricity, and all the apparatus for the preparation, mounting, and microscopical study of thin mineral and rock sections.

CHEMISTRY.

Professors Hart and Wysor, and Messrs. DeLong and Chase.

The study in this Department begins with a course of lectures in General Chemistry. A text-book is used and daily recitations are held. Each student is required to work in the Laboratory.

In the Mining Engineering and Electrical Engineering courses this course is followed in the Junior and Senior years by courses in qualitative and quantitative analysis. Special attention is given to the analysis of

engineering materials. The modern quick methods are thoroughly taught, theoretically and practically.

Partial or special students may enter the laboratories at any time, provided they have the necessary knowledge of General Chemistry to work advantageously. Advanced students will be afforded opportunity for continuing their studies, or for conducting investigations in Organic or Inorganic Chemistry.

PHYSICS.

Professor Moore.

The studies in this Department in all the courses at present occupy four recitations or lectures a week, beginning with the third term, Sophomore year, and continuing through the first and second terms of the Junior year.

In Mechanics there is a thorough mathematical discussion, accompanied with lectures and experiments.

In other subjects text-book study is accompanied with illustrative lectures, aided by apparatus which is continually enlarged and improved.

For students of the Technical courses one period a week in laboratory work is required. Experiments in mechanics, sound, heat, electricity, magnetism, and light are performed by the student, thus illustrating and emphasizing the principles of each respective subject.

For the advanced studies of the Technical courses in Analytical Mechanics and other topics of Mechanical Engineering see pages 81 and 88.

In Physics, as well as in Astronomy, Chemistry, Engineering, and Natural History, the studies are illustrated by wall charts, twelve hundred in all, many of

which give illustrations not otherwise easily accessible to students.

FRENCH AND GERMAN.

The courses offered in French and German continue through four and five terms respectively. They are designed to give the student a good reading knowledge, and to acquaint him with the literature and life of these nations. The work, however, is not confined to texts of a literary nature; it also embraces the reading of texts on scientific subjects. Such texts treating on various subjects in Technology are read with a view to increase the student's technical vocabulary, and to enable him to read with facility the foreign Journals of Technology.

HISTORY AND POLITICAL ECONOMY.

The Seniors pursue a course in Political Economy for one term (*vide* pages 28 and 30).

RHETORIC AND ELOCUTION.

Prof. F. A. March, Jr.

See p. 31 for the general statement of the work in Elocution and Rhetoric, and p. 125 for the Literary Societies which are strongly recommended to the students of the Engineering Department.

A Thesis is required in all the Technical Departments as a condition of graduation. It must show evidence of original investigation upon a subject appropriate to the Department and approved by the professor in charge. It must be neatly written upon regulation paper, bound and illustrated with such photographs, drawings, and sketches as may be needed. It will be prepared during the latter part of the Senior year, and an opportunity

will be given at the close of the course to read and defend the same before a public audience. These Theses, accompanied by their drawings, photographs, etc., if accepted, become the property of the College, and are deposited in the Libraries of the various Departments.

CIVIL ENGINEERING COURSE.

Professors Porter and Folwell, and Messrs. Brasefeld, Little, Colliton and Finch.

The design of this course is to furnish such theoretical instruction and engineering practice as will prepare its graduates for immediate usefulness in the field and office, and, after a moderate amount of professional experience, enable them to fill positions of trust and importance in their chosen profession. During the last two terms of Senior year, students are offered a choice between two lines of study, in one of which special attention is given to the subject of Bridge Engineering, in the other to that of Municipal Engineering.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the field, laboratory, and drafting-room. Theoretical principles are illustrated and explained by such problems and examples, taken as far as possible from actual engineering practice, as will best serve the purpose. In addition to the regular lectures, occasional ones are given by prominent engineers, in active practice, upon their specialties.

During the course visits are made to engineering structures, mills, etc., in connection with their special study. During the Senior year a tour of inspection is made of the prominent industries not otherwise accessible.

FACILITIES FOR INSTRUCTION.

The Department has a large equipment of instruments necessary for the various branches of engineering field practice, including chains, tapes, compasses, plane-tables, transits, levels, barometers, base-rods, standard base-line tapes and pulling apparatus, sextants, solar compasses, solar attachments for transits, floats, and current meters. A twelve-inch portable altitude and azimuth instrument of the latest and best form, from Fauth & Co., Washington, D. C., is used for instruction in Geodesy and Practical Astronomy. It is read by micrometer microscopes to single seconds, both of altitude and of azimuth, and is provided with level for double zenith distances. A precision level of the latest design is employed in instruction in precise leveling. The astronomical observatory contains an equatorial telescope, transit, an astronomical clock, meteorological instruments, etc.

For use in the lecture-room there are numerous models of the various types of bridges and roofs, several complete sets of full-weight sections of I and deck beams, channels, Z bars, angles, Phoenix and Keystone Columns, and the standard built sections; five foot section of a full weight plate girder, numerous full-weight sections of riveted joints, representing bridge and boiler work, hand and power riveting; sections of steel rails for railroads and street railways, cable slots, etc.; drawings, photographs of engineering structures when completed and during construction; slide rules and other calculating machines.

The Department also has a full-weight pin-connected highway bridge of fifty feet span and fourteen feet road-

way, weighing twelve tons, together with all false work and tools necessary to erect the same.

The main Testing Laboratory is thirty feet by sixty feet in dimensions, well lighted, and contains an Olsen Automatic Machine of one hundred thousand pounds capacity, three Riehlé Automatic Machines of one hundred thousand, one hundred and fifty thousand and two hundred thousand pounds capacity respectively, and a sixty-thousand pound Hydraulic Machine, all arranged for tension, compressive and transverse testing; a four-thousand pound wire tester, and a small machine for testing cord, twine, etc.; a transverse machine for specimens up to five feet in length, and provided with micrometers for measuring deflection; a torsion machine; a rattler for abrasion test of paving brick; improved elongation meters, and numerous smaller micrometers. The power for the laboratory is furnished by a twenty-five horse power electric motor.

The Cement Laboratory contains two two-thousand and one one-thousand pound machine for testing cement by tensile, compressive, or transverse stress; a machine for moulding briquettes under pressure, and a power-driven Boehme Hammer; a jig; a boiler for boiling tests; large immersion tanks, with running water, and the necessary moulds, sieves, scales, moist closets, etc. The power for this laboratory is furnished by a three-horse power electric motor.

The Hydraulic Laboratory contains a large vertical tank arranged for making experiments on the flow of water through orifices and nozzles under heads up to three hundred feet, as well as several tanks for use under low heads; three tanks, two of them thirty feet

long, for weir experiments; a turbine, Backus wheel, and other water motors; a Venturi meter, a measuring tank of a capacity of four thousand gallons, a smaller one of three hundred gallons, scales, and other appliances for measuring the water used in experiments, as well as arrangements for testing meters, nozzles, and fire hydrants, and for lecture-room illustrations. There is also connected with the laboratory a one-million gallon Worthington duplex pump. The laboratory is connected with a large cistern by four lines of sewer pipe of different sizes, each three hundred feet long, and arranged for making tests of joints and various experiments on flow of water.

The shop, which is in charge of a skilled mechanic, contains an engine lathe, drill press, a planer, a mineral lathe and saw, and the other necessary appliances for preparing test specimens, models, and apparatus, and for repair work.

The Library contains a number of the best and latest books and periodicals upon Engineering subjects, and students are encouraged to make free use of the same.

SPECIAL STUDIES.

The first two years of the course are spent in laying a foundation of pure mathematics. The last two years are devoted to the more purely professional work, which may be divided as follows:

SURVEYING.—The theoretical study of surveying extends over four terms, the field practice being confined almost entirely to the Summer School in Surveying. This school became a required part of the course with the year of 1901-'02. The course in surveying includes land surveying, leveling, topography hydrography, triangulation, railroad reconnaissance and location, and the elements of geodesy. Particular attention is given to have the students become rapid and at the same time accurate instrument men, to

be able to handle a corps advantageously, to keep neat and systematic notes, and make a clear and correct map. No error is allowed in the field or map which is not within the limits observed in correct practice.

ANALYTICAL MECHANICS is taught by means of lectures and recitations, treating upon forces, their composition and resolution, conditions of equilibrium, centre of gravity, moment of inertia, theory of motion, momentum, impact, energy and friction; solution of numerous problems.

RESISTANCE OF MATERIALS.—This subject is treated by means of lectures, text-books, and laboratory practice sufficient to thoroughly fix in the mind the principles of stress and strain, the behavior of materials under tension, compression and shearing stresses, resistance of pipes and riveted joints, strength and flexure of simple, cantilever, restrained, and continuous beams variously loaded; formulas for columns, torsion, shafts; working-strengths and fatigue of materials; designing of rolled and built beams, shafts, and columns according to standard specifications. Visits are made in connection with this course to pipe and boiler works.

MATERIALS OF CONSTRUCTION.—This course is to familiarize the student with the qualities, requirements, method of testing, preserving, and cost of material used in engineering structures. In connection with this course, visits are made to blast furnaces, rolling and wire mills, quarries, and cement works.

BRIDGES AND ROOFS.—This course includes the computation of stresses in the various forms of trusses by both numerical and graphical methods. Following this, each student designs a roof-truss, and those electing Bridge Engineering design a plate-girder, and then a pin-connected bridge, according to standard specifications, making full computations, working-drawings, bill of material, and estimate of cost for same, special attention being given to an economical design, and to joints and other details. Actual practice is given by the erection each year by the students of a full-weight, pin-connected bridge, belonging to the Department. Visits are made to bridges, and their details and general design are criticized, upon which written reports are made.

HYDRAULICS.—This subject is treated by recitations and laboratory work, embracing the study of head, velocity, and discharge

through orifices, tubes, pipes, canals, and rivers; measurement of water-power; testing hydraulic motors.

MUNICIPAL ENGINEERING, which is preceded by a course in Bacteriology, is taught by lectures and recitations, supplemented by practice in designing. It covers the supplying of water, and construction of reservoirs, stand-pipes, and pumping plants; the purification of water, and its distribution through mains and appurtenances; methods of collecting sewage, both dry and water-carried, and of disposing of this and of garbage, including determining the size and capacity of sewers, mains, laterals, inlets, flush tanks, etc.; cleaning and lighting streets; drainage and ventilation of buildings; estimates and specifications. In connection with this study, frequent visits are made for the purpose of inspecting existing works, completed and under course of construction. Each student electing this course is required to design a system of distribution or sewerage for some imaginary town, making complete maps, bill of material, and detailed estimate of cost.

RAILROAD ENGINEERING.—The work on railroad engineering includes the mathematical discussion of curves, frogs, switches, and crossings; economical locations as to grades and curves; calculation of earthwork; designing of trestles, culverts and other structures; discussion of the properties and shapes of materials used in construction. The field practice consists of a reconnaissance and location of a line upon such ground as will best illustrate the problems occurring in actual practice, making a complete map, and designing such details as drains, culverts road-crossings, etc., calculating earthwork; complete set of notes of all work done in field and office; estimating cost, including equipment.

MASONRY CONSTRUCTION.—This course treats of the requisites of stone, brick, and cement; practice in the testing of these materials; the method of preparing mortar and concrete; strength of stone and brick masonry, foundations, dams, retaining walls, bridge piers and abutments; culverts and arches; study of existing structures; specifications and cost.

ROADS, STREETS, AND PAVEMENTS.—This course comprises the reconnaissance, location, construction, and maintenance of towns and country roads, city streets, and pavements; tramways and street railways; details of construction; street cleaning; testing the quality of road material; specifications; estimates.

ASTRONOMY is taught by means of text-books and lectures accompanied by practice in fields and observatory. The practical work includes the work and adjustment of instruments, and the determination of time, latitude, longitude, and azimuth.

GEODESY.—This course includes the study of the instruments and the methods employed in measuring base lines, establishing stations, measuring angles, reducing triangulations, projecting maps, etc.

MACHINERY.—This course includes the theoretical principles of the steam-engine and other prime movers. Examinations and reports are made upon the power plants of some of the manufacturing establishments of the city, and upon locomotives, elevators, and cranes. The student is made familiar with the use of the steam indicator, planimeter, and speed indicator, and has practice in interpreting indicator diagrams.

The Department invites its friends and students to send specimens of materials, drawings, models, or photographs of bridges, machinery, or other engineering works. Illustrated circulars and price lists are also desired. Such contributions will be labeled with the donor's name and placed on exhibition, and when possible used in the work of the Department.

SYNOPSIS.

CIVIL ENGINEERING COURSE.

FRESHMAN YEAR.

First Term.

	Hours.
MATHEMATICS.—Algebra (Wentworth)	4
CHEMISTRY.—Lectures and Laboratory Work	4
MODERN LANGUAGES.—German Grammar, Composition, and Translation, 2; English, 2	4
DRAWING.—Elements of Industrial Drawing; Plane Problems	2
HYGIENE.—Lectures on Health	1
THE BIBLE	1

Second Term.

MATHEMATICS.—Trigonometry (Crawley's)	5
CHEMISTRY.—Lectures and Laboratory Work	2

	Hours.
MODERN LANGUAGES.—French, 2; German, 2; English, 2....	6
DRAWING.—Projections; Plates; Free-hand Lettering.....	2
THE BIBLE.....	1

Third Term.

MATHEMATICS.—Spherical Trigonometry (Crawley's) and Analytical Geometry (Ashton's); Mensuration (Hall)....	5
MODERN LANGUAGES.—French (continued), 2; German (continued), 2; English, 2.....	6
DRAWING.—Projections (Model Drawing); Plates.....	2
SURVEYING.—Instruments and their use.....	1
CHEMISTRY.—Elementary Organic Chemistry.....	2
THE BIBLE.....	1

Throughout the year—Themes.

SUMMER SCHOOL OF SURVEYING (in vacation)... Three weeks.

SOPHOMORE YEAR.

First Term.

MATHEMATICS.—Analytical Geometry (Ashton's), Differential Calculus (Hall).....	5
DESCRIPTIVE GEOMETRY (Hall).....	2
MODERN LANGUAGES.—French, 2; German, 2; English: Trench on Words, 2.....	6
SURVEYING.—Lectures, Recitations, Adjustments of Instruments; City and Mine Surveying; Leveling; Stadia; Plane Table; Area Computations.....	2
CHEMISTRY.—Analytical Chemistry.....	2
THE BIBLE.....	1

Second Term.

MATHEMATICS.—Differential and Integral Calculus (Hall)....	5
DESCRIPTIVE GEOMETRY (Hall).....	3
MODERN LANGUAGES.—German, 2; French, 2; Rhetoric, 1..	5
DRAWING—SURVEYING.—Map of Survey; Calculation of Areas	2
CHEMISTRY.—Analytical Chemistry.....	2
THE BIBLE.....	1

Third Term.

	Hours.
MATHEMATICS.—Least Squares and Differential Equations..	3
MECHANICS.—Elementary Mechanics.....	2
PHYSICS (one laboratory period).....	4
DESCRIPTIVE GEOMETRY.....	2
CHEMISTRY.—Analytical Chemistry.....	2
SURVEYING.....	2
RAILROADS.—Lectures, Recitations and Office Work. Rail- road Reconnaissance, Location and Construction.....	3
THE BIBLE.....	1
SUMMER SCHOOL OF SURVEYING (in vacation)....	Three weeks.

JUNIOR YEAR.

First Term.

PHYSICS.—Heat, Magnetism, and Electricity (one period in laboratory).....	4
APPLIED MECHANICS.....	4
CHEMISTRY.—Metallurgy of Iron and Steel.....	2
MINERALOGY.—Crystallography.....	2
RAILROADS.—Office Work; Paper Location; Earth-work Calcu- lation; Overhaul; Map of Location, Railroad, Construction; Lectures, Recitations.....	3
THE BIBLE.....	1

Second Term.

MECHANICS.—Theory and Conditions of Equilibrium. Cen- tre of Gravity. Moment of Inertia. Solution of Prob- lems.....	4
PHYSICS.—Acoustics; Optics (one period in laboratory)....	4
MINERALOGY.—Descriptive.....	2
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory.....	5
ROADS AND PAVEMENTS.—Lectures and Recitations.....	2
THE BIBLE.....	1

Third Term.

	Hours.
MACHINERY.—Steam Engine, Elevators, Cranes. Lectures and Text-book.....	4
RESISTANCE OF MATERIALS.—Theory of Continuous Beams, Combined Stresses, Concrete Beams and Columns Reinforced. Resilience and Work. Principle of Least Work, Impact and Fatigue. True Internal Stresses. Guns and Thick Cylinders, Rollers, Plates and Spheres. Testing Laboratory.....	4
MUNICIPAL ENGINEERING.—Lectures and Recitations.....	2
MINERALOGY.....	3
SANITARY BIOLOGY.....	2
THE BIBLE.....	1
THEMES.	
SUMMER SCHOOL OF SURVEYING (in vacation).....	Three weeks.

SENIOR YEAR.

First Term.

BRIDGES AND ROOFS.—Theory and Calculation of Stresses in Simple Trusses by Numerical and Graphical Methods. Designing of a Roof-truss.....	6
HYDRAULICS.—Theory of Hydrostatics. Efflux of Water from Orifices and Tubes. Weirs. Flow in Pipes, Canals, and Rivers. Hydraulic Motors. Laboratory Work...	5
GEOLOGY.....	2
ASTRONOMY.—Descriptive Astronomy. Text-book and Lectures.....	2
BIBLE.....	1

Second Term.

LABORATORY WORK.—Testing Laboratory; Hydraulic Laboratory; Cement Laboratory.....	2
GEOLOGY.—Historic and Dynamic. Text-book and Lectures.....	2
ASTRONOMY.—Practical Astronomy. Field and Observatory Work.....	2
POLITICAL ECONOMY.....	2
BIBLE.....	1

ELECTIVES.

	Hours.
1. BRIDGES.—Theory and Calculation of Stresses in Continuous, Cantilever, and Suspension Bridge by Numerical and Graphical Methods. Designing of Plategirders and Riveted Bridges, with Working Drawings. Estimates and Contracts.....	9
2. MUNICIPAL ENGINEERING. WATER SUPPLY.—Source and Supply of Water for Towns. Designing, Construction, and Maintenance of Systems.....	9

Third Term.

SURVEYING.—Field and Office Work. Precise Triangulation and Leveling. Elements of Geodesy.....	2
THESIS for Graduation.....	2
BIBLE.....	1

ELECTIVES.

1. BRIDGES.—Design of a Pin-connected Bridge, with Working Drawings. Bill of Material. Estimates and Contracts.....	11
ERECTION.—Designing of False Work, and Erecting of Bridges. Practice in Erecting a Full-weight Pin-connected Bridge.....	11
2. MUNICIPAL ENGINEERING; SANITARY.—Designing, Construction, and Maintenance of Sewerage Systems. Sewage Disposal. Drainage, Ventilation, and Heating of Buildings. Street Cleaning and Garbage Disposal.....	11

MINING ENGINEERING COURSE.

Professor Hall and Messrs. Brasefield and Colliton.

The aim of this course is to provide a good education, to lay a sound foundation in Engineering, and to give special preparation in Mining, Geology, Chemistry, Metallurgy, and Assaying.

The courses in Surveying, Analytical Mechanics, Resistance of Materials, Materials of Construction, Labora-

tory Physics, and Railroad Engineering have been fully described in connection with the Civil Engineering Course.

The courses in Mathematics, Languages, Physics, and Pure Graphics are the same in all the Engineering Departments, and have been presented.

A course in the Theory of Steam Engineering is followed by Graphical Constructions and Computations.

In Mechanical Engineering, after the courses in Analytical Mechanics, Resistance of Materials, Materials of Construction, and Graphic Statics, a term of Machine Design and Construction is given.

In Surveying, the theory and practice extends through the first three years, and includes: Chain, Compass, Transit Surveying; Adjustment of Instruments; and Leveling; City Surveying; Location and Construction of Roads, Streets, and Pavements; Topographical Surveys; Railroad Reconnaissance, Location, and Construction, with Profile Plans, Earthwork Calculations, Bills of Material, Estimates, Specifications, and Contracts; Theory of Mine Surveying, and the actual survey of a mine.

Following the course in Electricity as given in Physics, two periods each week for two terms are devoted to the study of Electrical Machinery with selected laboratory work, having especial reference to the application of electricity to mining operations.

The course in Drawing includes: Elements of Mechanical Drawing, tracings and blue prints; Free-hand Drawing and Lettering; Descriptive Geometry; Topographical Drawing; Graphic Statics; Map Drawing; Machine Drawing and Design. Additional drawing is also required in connection with mining problems.

The work in Chemistry begins with the first term of the Freshman year, and continues, without any break, for two and one-half years. Lectures and text-book study are accompanied by recitations and laboratory practice.

Metallurgy is given in two terms, and embraces the metallurgy of iron, steel, gold, silver, copper, lead, zinc, etc. Thorough courses are also given in Assaying and Blowpiping.

Particular stress is laid on a thorough course in English, which extends over the first two years. The course includes the study of Rhetoric. Both German and French are studied each term for the first two years. Two periods each week for one term are devoted to the study of Political Economy, and the same length of time is given to the study of the Constitution of the United States. A theme written on some assigned technical subject is required of the student each term.

In addition to the courses in Mineralogy and Geology, as previously explained, the mining engineers are given a course of two hours each week for one term in the study of Ore Deposits, and a course of the same length is given in Economic Geology. Instruction in the classroom will be supplemented, so far as possible, by a study of the different kinds of ore, and of the "country rock" in which they occur. A special course in the modern methods of determining rocks in thin sections by means of the polarizing microscope, with instruction in the proper methods of preparing and mounting the sections, will be offered; and practice in the ordinary methods of field work in geology, with the mapping and sectioning of a certain region, will be given.

The course in Mining proper begins with the Theory of Mine Surveying and the solution of problems for determining the position of faulted ore bodies. Then follows Prospecting for ore deposits in lodes, beds, and placers; Prospecting for magnetite with the magnetic needle, and borings for water, oil, and gas. The study of Rope, Rod, and Diamond Drill Boring is followed by that of Blasting and Excavation. In this connection the various tools, machines, and explosives are studied, together with their application in Blasting and Quarrying. Shaft Sinking, Shaft Boring, and Tunneling are studied, together with the materials for the support of excavated spaces and the methods of their application. While all the methods of Exploitation are investigated, particular attention is given to the mining of soft ore bodies, and of anthracite and bituminous coal. In the treatment of Haulage and Winding, special consideration is also given to the requirements of coal mining. Prominence is given to the study of Ventilation and Lighting because of their great importance in coal mining. The subject of Drainage receives careful treatment. Mining Law is studied with reference to locations on public lands, and also with reference to the prevention of mine accidents. The Mechanical Separation of Ores is studied, and designs and reviews of Special Mining Operations are made. The principles involved in determining the values of Mines and Quarries are discussed.

The Mining Engineer students use a separate room as a study. This is provided with an excellent Mining Library, and is supplied with the leading Mining periodicals. By the aid of a topical index, the library is

regularly used in the study of the subjects assigned. The student is in this way led to many original sources for information, and becomes acquainted with the prominent works on Mining.

Magnetite, hematite, and limonite iron mines are close at hand, and the anthracite coal mines and zinc mines are easily accessible; these, with extensive quarries of slate, limestone, steatite, granite, serpentine, and sandstone in the vicinity, offer excellent opportunities for the study of mining and quarrying operations.

The Ingersoll-Sergeant Drill Company, one of the largest manufacturers of mine machinery in the world, is located at Easton. This gives the Mining students the opportunity of seeing the construction of important mine machinery and of testing the machines.

Frequent visits are made to the mines and quarries in the vicinity, and two weeks in the spring vacation are spent at some prominent mining region in the practice of Mine Surveying and in the study of Practical Mining. Students are advised to spend one long summer vacation during their course in actual work at the mines.

On the spring trip of 1907 a visit will be made to the iron and zinc mines of northern New Jersey, after which a tour of inspection will be taken in that region. During the long summer vacation of 1906 a trip was made to the great iron ranges of Minnesota and the famous copper region of Michigan.

The equipment of the Department contains: a separate mine library, maps, charts, models, complete mine survey outfit, photographs, sample collection of ores, projecting lantern with several hundred slides, small machines

and machine parts, working drawings with bills of material, trade catalogues, etc.

Attendance at one session of the Summer School of Surveying is required of the Mining Engineering students, and attendance at the second session is strongly recommended.

SYNOPSIS.

MINING ENGINEERING COURSE.

The Freshman and Sophomore years are the same as in Civil Engineering (see page 84).

JUNIOR YEAR.

First Term.

	Hours.
MECHANICS.—Theory and Conditions of Equilibrium, Centre of Gravity, Moment of Inertia, Solution of Problems. . . .	4
PHYSICS—Heat, Magnetism, and Electricity (one period in laboratory)	4
SURVEYING.—Lectures, Recitations, Field and Office work. Topographical Survey and Leveling. Map of survey. .	3
MINERALOGY.—Crystallography.	2
CHEMISTRY.—Quantitative Analysis.	2
THE BIBLE.—New Testament Epistles, in German.	1

Second Term.

APPLIED MECHANICS.	4
RESISTANCE OF MATERIALS.—Elasticity and Strength of Wood, Stone, and Metals. Theory of Columns, Shafts, and Beams. Testing Laboratory.	5
PHYSICS.—Acoustics. Optics (one period in laboratory). .	4
MINING.	2
MINERALOGY.—Descriptive Mineralogy.	2
THE BIBLE.	1
SPANISH (Optional).	2
MINING.—Practical Work in the Mines in the Spring Vacation.	

Third Term.

	Hours.
RESISTANCE OF MATERIALS.—Testing Laboratory.....	4
STEAM ENGINEERING.....	4
MINERALOGY.—Determinative.....	3
MINE ENGINEERING.....	2
RAILROAD ENGINEERING.....	2
THE BIBLE.....	1
MINING.—Map of Mine Survey. <i>Throughout the year.</i> —Themes.	

SUMMER SCHOOL OF SURVEYING (in vacation).....Three weeks.

SENIOR YEAR.

First Term.

HYDRAULICS.—Theory of Hydrostatics. Flow of Water in Pipes, Canals, and Rivers. Weirs. Efflux of Water from Orifices and Tubes. Hydraulics. Motors.....	5
MECHANICAL ENGINEERING.....	2
METALLURGY.....	2
GEOLOGY.....	2
MINING.—Prospecting, Deep Boring, Blasting and Quarrying..	6
BIBLICAL STUDY.....	1

Second Term.

METALLURGY.....	2
GEOLOGY.....	2
ASSAYING.....	4
ELECTRICAL ENGINEERING.....	2
POLITICAL ECONOMY.....	2
MINING.—Shaft Sinking, Tunneling, Exploitation, Haulage, and Winding.....	5
BIBLICAL STUDY.....	1

Third Term.

FIELD GEOLOGY.....	2
ECONOMIC GEOLOGY.—Lectures, Recitations, and Field Work	2

	Hours.
ELECTRICAL ENGINEERING.—Electric Lighting and Electric Mine Machinery.....	2
MINING.—Ventilation, Drainage, Mechanical Separation of Ores. Designs for, and Reviews of, Special Mining Operations.....	9
BIBLICAL STUDY.	1
GRADUATION THESIS.	

ELECTRICAL ENGINEERING COURSE.

Professors Moore and Dickinson.

This course was organized in response to an earnest demand from students who sought opportunities of study in this department of science. It is parallel to the other technical courses, and differs from them in substituting the study of Physics, especially Magnetism and Electricity, for the strictly professional portions of the other courses.

The Sophomore year is the same as that of the Civil Engineers, except that two periods per week are given to work in the Physical Laboratory, amounting to six hours' actual laboratory work. In the Junior and Senior years, about one-half of the time of the students is given to special work in electricity and kindred subjects.

Graduates in the Department of Electrical Engineering receive the degree of Electrical Engineer.

The laboratories are large and well arranged.

The *General Laboratory of Physics* is thirty by sixty feet in dimensions, well lighted and convenient. The ceiling is high, and ample wall space is provided for permanent pieces of apparatus. Gas, electricity, compressed air, etc., are close at hand.

The main *Electrical Laboratory* is also thirty by sixty feet in dimensions. This room is fitted up with all the appliances required in such a laboratory. The dynamo collection consists of representative types of continuous and alternating current generators and motors, lamp banks, water rheostats, brakes, etc.; and the necessary instruments are supplied for loading and testing motors and generators.

The laboratory is supplied from the Easton Power Company's station, with two-phase alternating current at a frequency of sixty cycles. This current is available for the testing of induction motors, transformers and other alternating current apparatus with which the laboratory is well equipped.

A fifty kilowatt motor-generator set has recently been installed for the purpose of supplying the laboratory with direct current. This set consists of a seventy-five horse-power induction motor, directly connected to two twenty-five kilowatt 120 volt direct current dynamos, the current from which is supplied to the laboratory by means of a three-wire system. In case of need, direct current from the plant of the Easton Power Company is also available.

While designed primarily as a source of direct-current supply, this motor-generator set is so installed and equipped, as to be available at all times for experiments and tests by the students of the department.

The *Testing Laboratory* consists of two rooms, each being about twenty-two feet square. It contains the necessary delicate instruments for accurate testing, among which are a Thompson Quadrant Electrometer, a Thompson Reflecting Astatic Galvanometer, several

D'Arsonval Galvanometers, Resistance boxes, Wheatstone Bridges, Ballistic Galvanometers, Condensers, etc.

The Laboratory is also equipped with a high tension storage battery, for use in connection with tests upon insulating material.

The work in the Laboratory is quantitative as well as qualitative in character, special emphasis being placed on the necessity for accuracy and precision in all measurements.

The *Spectroscopic Laboratory* is twenty-five feet long by twenty-one feet wide. It contains spectroscopes of the best makers. This room is also used as the Microscopic Laboratory. The Department is well supplied with microscopes.

The *Shop* contains a seven horse-power Otto gas engine, besides a fifteen and a twenty horse-power electric motor. There are lathes, emery wheels, and the other usual appliances of a repair shop.

The *Apparatus Room* is stocked with the latest and best instruments.

The *Lecture Room* is large, well lighted, and supplied with all the conveniences for table experiments. Steam compressed air, gas, electricity, and sunlight are very carefully arranged for.

In addition to the dynamos and motors owned by the College, the students have access to the Edison and municipal plants and to the finely equipped electric rail-ways of the city.

The *Physical and Electrical Library* is well stocked with the standard works on electrical and other subjects, and is kept up to the times by the constant addition of foreign and home periodicals. The latest advances in

physical science are announced to the classes, and reports, written and oral, are made by the students upon them. The Library, in connection with the Laboratory, is regarded as an exceedingly important instrument of instruction.

The studies of the Freshman and of the Sophomore years are the same as in the Civil Engineering Course, except that in the Sophomore year Physical Laboratory work takes the place of Surveying.

JUNIOR YEAR.

First Term.

	Hours.
PHYSICS.—Heat, Electricity. Lectures and Recitations....	4
PHYSICAL LABORATORY.—Electricity.....	2
ELECTRICAL ENGINEERING.....	2
APPLIED MECHANICS.....	4
DRAWING.—Descriptive Geometry.....	4
MINERALOGY.....	2
THE BIBLE.....	1

Second Term.

APPLIED MECHANICS.....	4
RESISTANCE OF MATERIALS.....	3
PHYSICS.—Acoustics. Optics. Lectures and Recitations...	4
ELEMENTS OF MECHANISM.....	2
PHYSICAL LABORATORY.—Electrical Measurements.....	2
THE BIBLE.....	1

Third Term.

ELECTRICAL ENGINEERING.—Dynamo Electric Machinery...	4
Laboratory.....	2
RESISTANCE OF MATERIALS.....	3
STEAM ENGINE.....	4
THE BIBLE.....	1
THEMES.	

SENIOR YEAR.

First Term.

	Hours.
ELECTRICAL ENGINEERING.—Dynamo Electric Machinery..	6
Laboratory. Electrical Testing.....	2
HYDRAULICS.....	5
DRAWING.—Machine Designing and Drawing.....	2
THE BIBLE.....	1

Second Term.

ELECTRICAL ENGINEERING.—Alternating Currents.....	6
Electric Transmission.....	3
The Electric Telegraph.....	1
Laboratory.....	2
Methods of Electrical Testing.....	1
POLITICAL ECONOMY.....	2
THE BIBLE.....	1

Third Term.

ELECTRICAL ENGINEERING.—Alternating Current Machinery	6
The Electric Railroad.....	3
The Telephone.....	2
Laboratory. Electrical Testing.....	2
Designs for, and Reviews of, Electrical Engineering Works.	
HISTORY.....	2
THE BIBLE.....	1
THESIS.	

Each term throughout the course—Elocution.

NOTE.—Laboratory work, as herein stated in "hours," represents three hours actual work, the "hour" indicating a "period" of that length.

MECHANICAL ENGINEERING COURSE.

Through the generosity of Mr. Andrew Carnegie sufficient funds have been secured for the establishment of a Mechanical Engineering Course. Full announcement of this course will be made in a later Bulletin. The instruction in the Freshman year will be substantially the same as in the other Engineering Courses.

CHEMICAL COURSE.

Professors Hart and Wysor and Messrs. DeLong and Chase.

The aim of this course is to fit young men for practical work in chemistry, either as chemists in iron and steel works, in manufacturing establishments, or as chemical manufacturers. Great attention is paid to analytical chemistry, and especially to the chemistry of cement and the chemistry and metallurgy of iron and steel. Graduates are fitted to take paid positions as chemists immediately upon graduation. For men of the proper character immediate and remunerative employment can be secured. This course will also be found an excellent preparation for the study of medicine.

While the instruction centres in the two branches of Chemistry and Metallurgy, the course aims to supply a thorough education along the lines most necessary for a successful career as a responsible chemist. The same instruction in the Bible, Mathematics, Physics, the Natural Sciences, English, French, and German, which is required in the Engineering Courses, is required here, as will be seen in the synopsis. The study begins with a course of lectures on Descriptive Chemistry. In connection with these lectures each student is required to work in the laboratory. Each period of three hours is divided into a quiz of half an hour, two hours laboratory work and a half hour lecture, this division of time having been found most suitable. This course continues through Freshman year and includes instruction in Organic Chemistry.

In Sophomore year the descriptive chemistry is reviewed and after some introductory work, which includes a short study of gas analysis, volumetric and

gravimetric analysis, some electrolytic work and testing the balance and weights, Qualitative Analysis is taken up. The object of this introductory work is to demonstrate to the student by his own experience the necessity of careful work in order that correct results may be obtained. The drill in Qualitative Analysis is very thorough. At the same time great pains are taken to make it interesting and to illustrate practice by a study of theory with constant use of the library and the notebook. Daily recitations are held for which purpose the class is divided. Drill is also given in Chemical Arithmetic as a part of this course.

In the third term, Sophomore year, Quantitative Analysis is begun with instruction in sampling and the preparation of samples for analysis. At the same time a review of the Organic Chemistry, including the preparation of at least two organic compounds with detailed reports on the literature, is begun. This lasts until the end of second term, Junior year. Instruction in volumetric, electrolytic and organic analysis, in glassblowing, etc., are not made separate studies but form part of the laboratory work, and proficiency in each is insisted on.

The course in Chemistry is so planned that the Freshman and Sophomore years are spent chiefly in preparation. In Junior and Senior years those who are properly prepared are encouraged to spend most of their time in preparation for their future careers. This plan makes it unnecessary to multiply degrees in Chemistry which is not considered desirable.

It often happens that students taking this course are looking forward to a business career for which a study of chemistry is the most important preparation. In all

such cases the widest liberty of choice is allowed in Junior and Senior years. Thus, if a student expects to be a tanner most of his time is given to preparation for work in this field during these years. Students who are looking forward to the study of Medicine after graduation are allowed to substitute Toxicology, etc.

A large proportion of the graduates in the Chemical Course have become chemists in iron and steel works, and the following list of analyses required of men having this in view will give a good idea of the amount of work required:

1. Copper in Copper Sulfate.
2. Water of Crystallization in Copper Sulfate.
3. Lead in Lead Carbonate.
4. Silica, iron and alumina, lime (gravimetric and volumetric), magnesia, phosphorus (volumetric), and carbon dioxide in limestone.
4. Silica, iron and alumina, lime and magnesia in cement and cement mixtures.
5. Silica, iron (volumetric), alumina, manganese (3 methods), lime, magnesia, phosphorus (gravimetric and volumetric), titanium (gravimetric and colorimetric), chromium (volumetric), and sulfur in iron ore.
6. Sulfur, volatile matter, fixed carbon and ash in coal. The ash is examined for silica, iron and alumina, lime, magnesia, phosphorus and alkalis.
7. Copper in copper ores.
8. Lead in galena.
9. Zinc in zinc ores.
10. Manganese (colorimetric, gravimetric and volumetric), silicon, sulfur (gravimetric and volumetric), phosphorus (3 methods), carbon (2 methods), nickel (volumetric), tungsten, chromium, molybdenum, vanadium and aluminum in iron and steel.
11. Lead (2 methods), copper (3 methods), zinc, arsenic, antimony, iron, aluminum, manganese, nickel, tin, bismuth and phosphorus in alloys.
12. Hardness, acidity or alkalinity, alkalis, calcium, magnesium, iron and alumina, chlorine, sulfuric acid, carbonic acid, total solids and organic matter in boiler water.
13. Oxygen absorbed by organic matter, ammonia-free, combined and albumenoid, nitrites and nitrates in potable water.
14. Carbon dioxide and monoxide, oxygen, illuminants, hydrogen and methane in furnace and flue gases.
15. Carbon, hydrogen, nitrogen (2 methods), in organic compounds.

METALLURGY.—The course in metallurgy is calculated to give the student a full knowledge of the underlying principles and at the same time a clear idea of the practice. In the discussion of each typical process, the problems attending an increased output and a better quality of the product are emphasized as well as the problems involved in present conditions of practice. Special attention is paid to American metallurgical practice.

Two lectures a week are given. Following each lecture two hours are spent in the laboratory. The work here is chiefly upon fuels, refractory materials and metals. The efficiency of various fuels is determined and methods of firing are studied. Tests are made of refractory materials by means of the electric furnace and pyrometer. The effect of impurities, temperature and mechanical treatment upon metals is studied with the help of a metallographic outfit.

THEORETICAL CHEMISTRY.—Two hours per week for the whole of the Junior year are devoted to the study of the theory of chemistry. The following are among the subjects considered. The work is done partly in the recitation room and partly in the laboratory: 1. Specific Gravity Determinations. 2. Melting and Boiling Point. 3. Solubility. 4. Faraday's Law. 5. The Gas Laws. 6. Molecular Weights by 2 methods. 7. Electric Conductivity. 8. Periodic Law. 9. The Phase Rule. 10. Specific Heat. 11. Spectrum Analysis. 12. Microscopic Crystallography. 13. Photographic Work. 14. Calorimetry. 15. Polariscopic Work.

INDUSTRIAL CHEMISTRY.—Two hours per week during the first term of Senior year are given to the study

of Industrial Chemistry. This is supplemented by preparation work in the industrial laboratory. No attempt is made to cover the whole field but attention is concentrated upon the preparation of the so-called "heavy chemicals," each of which is carefully treated from a commercial standpoint. This work is further supplemented by evening lectures by persons engaged in the chemical industries.

ASSAYING.—This covers two periods of six hours for the second term Junior. Most of the time is devoted to silver, gold and lead. The equipment comprises two Burlingame Furnaces (such as are used in Denver), each having three large muffles.

Partial or special students may enter the laboratories at any time, provided they have sufficient knowledge of chemistry to work advantageously. Advanced students have opportunity for continuing their studies or for conducting investigations.

The department is now housed in Gayley Hall, a fine new fire-proof building erected especially for it by James Gayley, of the Board of Trustees. This building contains four large and several smaller laboratories, lecture rooms, quiz room, assay laboratory, metallurgical laboratory, crystallizing and gas analysis rooms.

Large additions have been made to the equipment within the past year. The metallurgical laboratory contains a full shop equipment, grinding machinery and electrical furnaces for roasting ores at uniform temperatures. There is also an electric pyrometer and metallographic outfit for testing the heat treatment of metals. Among the pieces of apparatus bought during the year are a fine spectrometer, Beckmann apparatus, Parr



GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY.

calorimeter, Kryptol furnace, metallographic outfit, and oil furnace and viscosimeter. Throughout the different laboratories no expense or pains have been spared to bring them into harmony with the best current practice. A course of lectures, mostly by graduates of the department now engaged in practical work, is given annually in the lecture room of Gayley Hall.

The Henry W. Oliver Chemical and Metallurgical Library has a separate room in this building, and is open to students during study hours and on Monday, Tuesday, Thursday and Friday evenings from seven to ten o'clock. This library was endowed by Henry W. Oliver, of Pittsburg. The collection of chemical books formerly belonging to the college has been added to it by vote of the Trustees, and considerable additions are annually made by purchase and gifts. In 1901 a complete and very beautiful set of the *Berichte der deutschen chemischen Gesellschaft* and in 1903 a complete set of the *Journal of the Iron and Steel Institute* were added; in 1904 a complete set of the *Transactions of the Institute of Mining Engineers* was presented by a friend of the College and the set of the *Annales de chimie et de physique* was completed. Numerous single volumes and dictionaries were also acquired by gift or purchase.

A friend of the College has bought and presented to the Henry W. Oliver Chemical and Metallurgical Library all the pamphlets, about 3,000 in number, belonging to the library of the late Prof. Johannes Wislicenus, of the University of Leipsic.

This library represents the collection of fifty years of great activity, and will be a great addition to the Oliver Library. It is now being indexed and bound. The Oliver Library now contains about 1800 volumes.

In addition, the students have access to Professor Hart's private chemical library, embracing about one thousand volumes. These libraries contain full sets of the *American Journal of Science*, *Dingler's polytechnisches Journal*, *Wagner's Jahresbericht*, *Journal of the Society of Chemical Industry*, *Fresenius' Zeitschrift*, *American Chemical Journal*, *The Journal of the American Chemical Society*, *Zeitschrift für angewandte Chemie*, *Zeitschrift für anorganische Chemie*, *Zeitschrift für physikalische Chemie*, *Berichte der deutschen chemischen Gesellschaft*, *Annales de chimie*, *Journal of the Iron and Steel Institute*, *Transactions of the American Institute of Mining Engineers*, a nearly complete set of *Liebig's Annalen*, and partial sets of the *Comptes rendus*, *Bulletin de la société chimique*, *Journal für praktische Chemie*, *Chemical News*, *Journal of the Chemical Society*, *Chemisches Centralblatt*, and many dictionaries and special works upon Chemistry and Metallurgy.

SYNOPSIS.

CHEMICAL COURSE.

The Freshman and Sophomore years are the same as in the Civil Engineering Course, except that in the latter year Chemistry takes the place of Surveying in the first, second and third terms, of Descriptive Geometry in the second term and of Drawing in the third.

SOPHOMORE YEAR.

Third Term.

	Hours.
MECHANICS.—Elements of Mechanics (Moore) (one period in laboratory).....	4
CHEMISTRY.—Analytical Chemistry.....	6
CHEMICAL ARITHMETIC.....	3

	Hours.
ORGANIC CHEMISTRY.....	2
THE BIBLE.—The Acts.....	1
<i>Throughout the year</i> —Declamations and Themes.	

JUNIOR YEAR.

PHYSICS.—Heat, Electricity, Magnetism, Optics, and Acoustics, (First two terms) (one period in laboratory).....	4
MINERALOGY.— <i>First term</i>	2
<i>Second term</i>	2
<i>Third term</i>	3
SCIENTIFIC GERMAN.....	1
CHEMISTRY.—Theoretical and Practical, including Qualitative and Quantitative Analysis, and Laboratory work in Or- ganic Chemistry, and in Assaying. (8 hours first and second terms; 12 hours third term).....	8-12
THE BIBLE.—New Testament Epistles, in German.....	1
<i>Throughout the year</i> —Declamations and Themes.	

SENIOR YEAR.

CHEMISTRY.—Advanced work in all departments of Chem- istry, Metallurgy, Chemical Technology, with special work in some selected department. (14 hours first term; 12 hours second term; 14 hours third term).....	12-14
GEOLOGY.—First term.....	2
Second term.....	2
POLITICAL ECONOMY.—General Principles. (Second term) ..	2
HISTORY.—Lectures on the development of European institu- tions (Third term).....	2
SCIENTIFIC GERMAN.....	1
THE BIBLE.—History and Evidences.....	1
<i>Throughout the year</i> —Themes and Extemporaneous Speak- ing. Chemical theses.	

GENERAL INFORMATION.

ATTENDANCE.

Attendance on all College exercises is strictly required. Absences on account of sickness, or for other satisfactory cause, may be excused, and leave of absence will be granted at the request of parents when absolutely necessary. In such cases the absence is excused, but the student is invariably required to make up such work as he may lose by reason of his absence. Reports are sent to parents whenever the absences of their sons exceed a reasonable number. In cases of the absences becoming excessive, the faculty will punish the neglect with suspension. Absences incurred at the beginning and end of terms, especially if they involve absence from examinations, and immediately preceding and succeeding holidays, are regarded with special disapproval and under ordinary circumstances will not be excused.

Each student is expected to have sixteen recitations each week. Three hours of field or laboratory work are regarded as equivalent to one recitation period. The regular gymnasium drills are also regarded as required exercises as far as prescribed. No student is permitted to take a course involving fewer hours of recitation without a special vote of the Faculty.

EXAMINATIONS.

Examinations are held at the close of each term on the studies of that term, and may be either written or oral, or both, at the option of the professor in charge. In addition to these regular examinations, partial examinations and written recitations are held from time to time during the term, with or without notice to the stu-

dents. Failure to attend an examination, except for reasons of absolute necessity, is regarded as a serious delinquency, and will be dealt with according to the circumstances of each case.

STANDING.

The scholarship of students is determined by the results of the examinations and daily recitations combined.

Students entering with conditions are required to make them up before the end of the term next after that in which they enter.

Students failing to pass in any studies of any term are required to make up such studies before the end of the next term, and they may be specially directed to do so at an earlier date. Students who do not comply with these regulations will be put on probation in scholarship, or lose standing and be only "permitted to recite," or be dropped into the next lower class, as the Faculty may, in each case, decide.

Reports of the standing of the students are made to their parents or guardians at the end of each term.

RULES GOVERNING ABSENCES AND RE-EXAMINATIONS.

1. No absence from a recitation, a lecture, or a laboratory exercise shall be excused.

2. If the number of a student's absences in any term from the exercises in any subject exceeds the number of exercises per week in the subject, but not double the number, he may, at the discretion of the teacher in charge, be debarred from the term examination in the subject, provided the number of absences is not less than three.

If he is debarred, he must pass on the subject before the first day of the next term or repeat the subject with a following class.

3. If the number of a student's absences in any term from any subject exceeds double the number of exercises per week in the subject, he must repeat the subject with a following class, provided that the number of such absences must exceed three.

4. If, for special reasons, the head of the department recommends it, the Faculty may vote that a student who would otherwise be required to repeat a subject by Rule 3 be given one examination on the subject. If he fails in this examination, he must repeat the subject.

5. Before a student may take the examination provided for in Rule 4, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the teacher in charge of the examination.

6. The teacher in charge of each subject shall, at the beginning of each week, post in some place easily accessible to the students interested, the number of absences from the exercises of the subject of each student to date.

7. All absences shall be reported weekly to the Clerk of the Faculty, who shall record them.

8. When the number of a student's unexcused and unpermitted absences from the religious and other exercises of the College reaches five, he shall be warned by his class dean; when it reaches ten, he shall be again warned; when it reaches fifteen, he and his parents shall be warned that he is in danger of being dropped from the College rolls; when it reaches twenty, he shall be dropped.

PERMITTED ABSENCES.

9. In case of absence due to prolonged sickness or request from home for urgent reasons approved by the class dean, the student shall, as soon after the absence as possible, present to his dean a written statement of the cause of his absence, after which the dean shall give the student an exact statement of the duration of his absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then take it to the Clerk of the Faculty, and the absences indorsed upon it shall not be counted by the Clerk in making up the number of Rule 8.

When such permitted absence causes the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done by the class during as many of these absences as are required to bring his absences below the debarring number by an examination to be held within a month of the absences.

If he fail in this examination, he shall be debarred from the term examination and required to pass on the subject by a special examination to be held before the first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars, and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

10. When permission to be absent from town has been given to a student by vote of the Faculty or by the President acting for the Faculty, such student shall receive from the Clerk of the Faculty an exact statement of the duration of such absence, which he shall present to his instructors, each of whom shall indorse upon it the number of absences from his subject covered by it. The student shall then return it to the Clerk of the Faculty and the absences indorsed upon it shall not be counted by the Clerk in making up the numbers of Rule 8.

When such permitted absences shall cause the number of a student's absences in any subject to reach the number which would debar him from the examination, he shall be required to make up the work done during as many of these absences as are necessary to bring his absences below the debarring number by an examination held within a month of the absence.

If he fail in this examination he shall be debarred from the term examination and required to pass on the subject by a special examination to be held before the first day of the following term. If he fail in this special examination, he shall repeat the subject with a following class.

Before this special examination may be held, the student shall pay to the Treasurer of the College a fee of two dollars and shall show his receipt for the same to the teacher in charge of the examination.

The student shall be permitted to make up, by examination, all these permitted absences, in which case none of them shall be counted against him.

11. If professors, in whose departments a student has the majority of his hours per week, report to the Faculty that the student is neglecting his work, he and his parents shall be warned that he is in danger of being dropped from the college rolls. If a second such report be made, he shall be dropped.

RE-EXAMINATIONS.

1. A student who fails at the regular term examination, in any subject, shall be entitled to one re-examination.

2. If, for special reasons, the head of the department recommend it, the Faculty may vote that a student who has failed in the re-examination provided for in Rule 1 may be given a second re-examination.

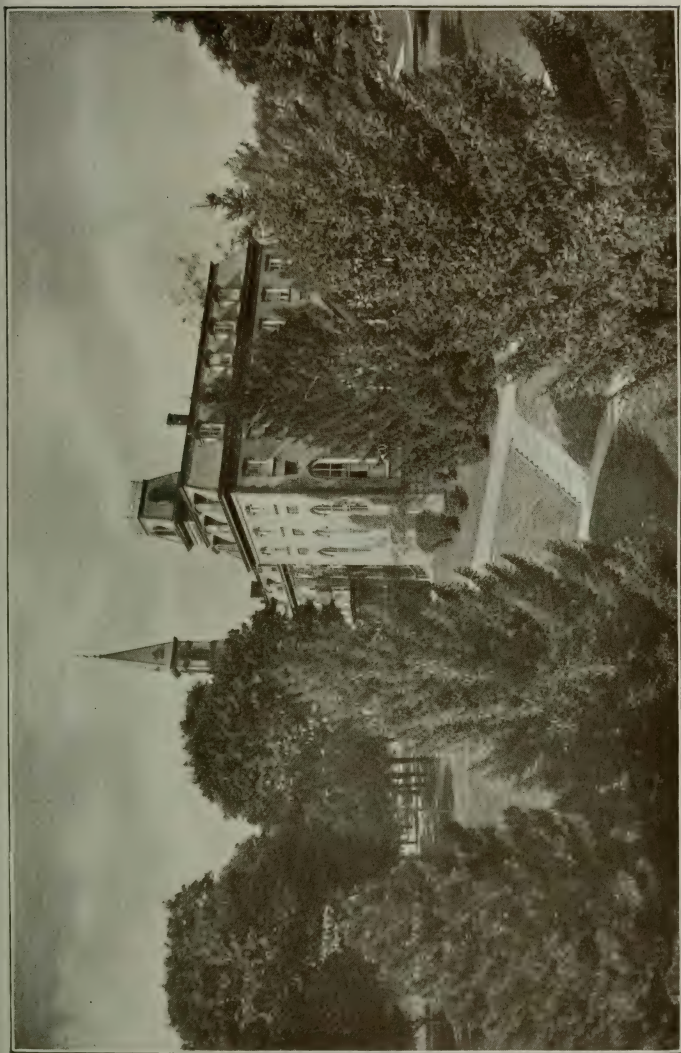
3. Before a student can take the second re-examination provided for in Rule 2, he shall be required to pay to the Treasurer of the College a fee of two dollars and show the Treasurer's receipt for the same to the instructor in charge of the examination.

4. If, at the beginning of the college year, a student has failed to pass on his conditions of the preceding year in the Departments of Mathematics, Mechanics, Physics, French and German—he shall be required to repeat the subjects in which he is still conditioned.

5. When subjects, which closely depend upon each other, are continued through successive terms, the department interested may require that all conditions of any term in those subjects shall be made up within two weeks from the beginning of the next term, in order that the student may go on with those subjects.

GRADUATION.

Students who have pursued the entire course as prescribed and have successfully passed their examinations



SOUTH COLLEGE.

are recommended to the Trustees for the first academic degree in course. Such recommendations are ordinarily acted upon and the degrees are conferred at Commencement, at which time the students receive diplomas from the President of the College. At Commencement the Faculty awards such honors as it sees fit to those who are to receive degrees. These honors ordinarily consist of a valedictory oration, a Latin salutatory, and other honorary orations and theses.

COMMENCEMENT.

The third Wednesday in June and the three days immediately preceding it are set apart for the exercises in connection with the annual Commencement. On Sunday, the first of these days, a Baccalaureate sermon is preached in the College Chapel at eleven o'clock in the morning; and in the evening a sermon is preached in the auditorium of Pardee Hall before the Brainerd Society of the College by some distinguished minister selected by the Society.

The preacher for 1906 was Rev. A. E. Keigwin, D.D., '91, of New York, N. Y.

On Monday the Senior class holds its Class Day exercises on the Campus.

The Alumni and Literary Societies hold their reunions on Tuesday, and orations are delivered before the respective societies in the Society Halls.

The regular Commencement exercises are held in the auditorium of Pardee Hall on Wednesday morning, the afternoon being occupied by the Alumni dinner. All these exercises are open to the public. Various other exercises of an athletic or social nature are conducted

on the part of the students under a general supervision by the Faculty.

DEGREES.

THE FIRST DEGREE.—The degree of *Bachelor of Arts* is conferred on the graduates of the Classical Course; *Bachelor of Philosophy*, on those of the Latin Scientific Course; *Bachelor of Science*, on those of the General Scientific Course; *Bachelor of Science* (in Chemistry), on those of the Chemical Course; *Civil Engineer*, on those of the Civil Engineering Course; *Engineer of Mines*, on those of the Mining Engineering Course; *Electrical Engineer*, on those of the Electrical Engineering Course.

MASTER'S DEGREE.

MASTER OF ARTS.—The degree of *Master of Arts* may be conferred one year after graduation on any *Bachelor of Arts* who has pursued a prescribed course of study, equivalent to sixteen recitations per week, during one year in residence, passed the examinations, and presented a satisfactory thesis.

The same degree may be conferred two years after graduation on any *Bachelor of Arts* who shall have devoted at least one year exclusively to advanced study under the direction of the Faculty, passed examinations in the studies pursued, and presented a satisfactory thesis.

Candidates for this degree must in all cases register on or before October 1st, and examinations must be held at the College at least once in each College term. Theses must be presented for approval not later than May 1st. A registration fee of \$5 and tuition-fee of \$100 per annum for residents, and \$45 per annum for non-residents, is exacted of all graduate students.

MASTER OF SCIENCE.—The degree of *Master of Science* may be conferred upon any graduate of the Scientific Department upon conditions similar to those prescribed for the degree of Master of Arts.

DOCTOR OF PHILOSOPHY AND OF LETTERS.

The degree of *Doctor of Philosophy* may be conferred three years after graduation on any college graduate who, during three years of

continuous residence at the College, shall have devoted himself exclusively to advanced studies under the direction of the Faculty, passed examinations in them, and presented a satisfactory thesis. The candidate must designate three branches of study which he desires to pursue, each in a different department, one major or principal study, and two minor studies. The faculty will recommend for this degree men of high capacity and attainments only. Length of residence or time spent in study constitute no claim for its bestowal.

The regulations governing registration, examination, theses, and fees are the same as for the Master's degree.

Any graduate of a recognized college may be permitted to pursue graduate studies under the direction of the professors in the various departments upon satisfactory evidence of his fitness to do so. No curriculum is prescribed for such students. A course of study is usually arranged after consultation which will meet the specific object each student has in view.

CERTIFICATES.

Students who have been admitted to any department of the College, and have passed satisfactory examinations therein, may obtain certificates of the work which they have done if they have been in attendance not less than one year.

RELIGIOUS INSTRUCTION.

The aim of Lafayette College is distinctly religious. Under the general direction of the Synod of Pennsylvania of the Presbyterian Church its instruction is in full sympathy with the doctrines of that body. At the same time religious instruction is carried on with a view to a broad and general development of Christian manhood within the lines of general acceptance among evangelical Christians, the points of agreement, rather than those of disagreement, being dwelt upon.

Prayers are held each morning in the Chapel at 7:50 and religious services in the Chapel Sunday mornings at 11 o'clock. All students are expected to attend these services. No exceptions will be made to this rule for morning prayers. Where there is some exceptional reason assigned by the parents, students will be permitted to attend one of the churches in Easton instead of the Sunday morning service. This permission will be granted only on request of parents and for sufficient reason.

Special sermons are preached before the College from time to time by distinguished ministers. The preachers for 1906 were: Rev. Robert R. Gailey, '93, Tien Tsin, China; Rev. C. A. R. Janvier, Philadelphia; Rev. Clarence E. Hills, D.D., Mifflintown; Rev. J. Stuart Dickson, D.D., New York, N. Y.; Rev. Leighton W. Eckard, D.D., '66, Philadelphia; Rev. Edward B. Hodge, D.D., Philadelphia; Rev. Samuel J. Rowland, D.D., Clinton, N. J.; Rev. Henry A. MacKubbin, Lambertville, N. J.; Rev. Samuel A. Martin, '77, D.D., Pittsburg; Rev. William P. Swartz, Ph.D., Poughkeepsie, N. Y.; Rev. William P. Fulton, D.D., Philadelphia; Rev. H. Clay Ferguson, D.D., Philadelphia; Rev. H. Roswell Bates, New York, N. Y.; Rev. Walter A. Brooks, D.D., Trenton, N. J.; Rev. Robert Hunter, D.D., Philadelphia; Rev. Nicholas F. Stahl, Mauch Chunk; Members of the College Faculty and the local clergy.

The preacher for the Day of Prayer for Colleges, 1907, is Rev. W. Beatty Jennings, D.D., of Germantown.

Instruction in the Bible has always held a prominent place in the College, and a full account of the courses in Bible study will be found on page 22.

LECTURES.

Special courses of lectures are given annually in connection with several departments and will be found under those departments. A more general course of a popular character is given each year.

Among those who have given lectures during the year 1906 are: Dr. Robert N. Wilson, Philadelphia; Prof. William B. Owen, Ph.D., '71, Easton; J. A. MacKnight, Calera Ala.; Prof. Joseph W. Richards, Lehigh University; Prof. Francis H. Green, West Chester; Mr. George Stevenson, Philadelphia; Prof. J. M. Mecklin, Ph.D., Easton; Rev. A. W. Halsey, D.D., New York, N. Y.; Seneca Egbert, M.D., Philadelphia.

TERMS AND VACATIONS.

The College year is divided into three terms, with intervening vacations, as given in the Calendar on page 5. All the classes are examined at the close of each term, and a report sent to the parent or guardian. Students are required to be present punctually at the beginning of each term, and are not allowed during term-time to be absent from town, except by written permission from the President.

The Wednesday after the 20th of October in each year is observed as Founders' Day, in memory of those who founded the College and of those who have since contributed to its usefulness. On Founders' Day, 1906, an address was delivered by Rev. Isaac J. Lansing, of Scranton.

BUILDINGS. LABORATORIES. LIBRARIES.

The College grounds are situated upon the summit of a beautiful hill, overlooking the city of Easton. They

are reached by a flight of stone steps, which ascend the bold front of the hill directly from the head of Third Street, or by electric cars, which skirt the face of the hill by a gradual incline. At the head of the steps stands the monument erected by the Alumni Association to their comrades who "died for the Union." The grounds contain about forty acres, terraced and laid out under the direction of Donald G. Mitchell. The buildings upon the campus are thirty in number. The oldest of these is

SOUTH COLLEGE.

The central portion of this structure is the original College building, erected in 1833. It contains several lecture-rooms and a number of dormitory rooms. Two wings were added to the original building, which contain the College Chapel and lecture-rooms for the English, Latin, and Greek Departments.

THE VAN WICKLE MEMORIAL LIBRARY.

The Van Wickle Library was dedicated on May 30th, 1900. It has given to the College one of the most needed additions to its equipment. A beautiful building of Pompeian brick and terra cotta, thoroughly furnished with the most approved appliances for library work, it is at once a most beautiful and useful feature in the College's development. It contains a large reading room, in which the periodicals and books of most constant reference are to be found; a reference book department; a large room for the general storage of the Library; Librarian's room, and small rooms for special work.

PARDEE HALL.

The most commanding position on the campus is occupied by this building, the most conspicuous evidence of

the liberality of the late Ario Pardee, which reached to every department of the College. Here the departments of Civil, Mining, and Electrical Engineering are supplied with thoroughly equipped laboratories, and lecture-rooms, and the museums of these departments, and of General Geology, Mineralogy, and Natural History, are to be found. The Ward Library and the handsome rooms of the two Literary Societies are also in this building, and the central portion of the second and third floors of the main building contains a beautiful auditorium, in which the Commencement exercises, lectures, and other public entertainments are held.

JENKS BIOLOGICAL HALL.

This building was erected in 1864-65 by the late Barton H. Jenks, of Philadelphia. It was recently entirely remodeled.

THE GAYLEY LABORATORY OF CHEMISTRY AND METALLURGY.

Completed in 1902, is occupied by the departments of Chemistry and Metallurgy. The building consists of three stories, and is constructed of Indiana stone, Colonial brick, and gray terra cotta. It is fireproof, with steel and cement floors, and gives a thoroughly modern equipment to these departments. This building contains also the Henry W. Oliver Chemical and Metallurgical Library.

THE ASTRONOMICAL OBSERVATORY,

in addition to the observatory proper, contains a lecture-room, with accommodations for the students in Astronomy.

WEST COLLEGE

contains the lecture-room of Dr. Francis A. March and the offices of the Registrar and Treasurer of the College.

THE GYMNASIUM,

which has already been sufficiently described on page 23, contains a complete equipment for physical training.

THE DORMITORIES.

A complete reorganization of the dormitory system was effected in the summer of 1900 by the building of central structures, known as Knox and Fayerweather Halls, to connect Blair and Newkirk Halls and Martien and Powell Halls respectively, and the facing of the completed buildings with mottled Pompeian brick, handsomely trimmed with red terra cotta. The architectural beauty of the buildings is in marked contrast with the former appearance of the separate buildings. These halls are connected with McKeen Hall in a common steam plant. A complete sanitary plumbing system of baths, sinks, closets, and electric lights has been installed in all the buildings. These improvements leave nothing to be desired for the health and comfort of the students.

INFIRMARY.

A building on the extreme northeast corner of the campus, facing upon McCartney Street, is set apart for the use of sick students, thus securing quiet and complete isolation in case of the occurrence of any contagious disease.

This building is intended solely for the use of students rooming in the College buildings.



BRAINERD HALL.
Erected for the College Y. M. C. A., 1902, by James Renwick Hogg, '78.

BRAINERD HALL.

This building for the Y. M. C. A., the gift of J. Renwick Hogg, Esq., '78, of the Board of Trustees, was erected in 1902. It is a three-story gray stone building in the Tudor Gothic style. It contains a large room for the meetings of the society, and reading, writing, and committee rooms; also a trophy room for the Athletic Association, a room for the collection of curios from foreign missionary fields, and bowling-alleys in the basement.

Its object is to afford a home under active Christian influences for all forms of student life.

The remaining buildings consist of a large GREENHOUSE, a useful adjunct to the Department of Botany, and also supplying flowers and plants for the adornment of the grounds in summer and of the buildings on public occasions. Besides these, a number of buildings are occupied as the HOMES OF THE MEMBERS OF THE FACULTY. The intimate relations resulting from the residence of both Faculty and students upon the college grounds are regarded as one of the most wholesome features of the college life.

LIBRARIES AND READING-ROOM.

The main regular College Library occupies the Van Wickle Memorial Library, described above. The College Library was established at the foundation of the College, and has had a steady and uninterrupted growth since 1832, and is chiefly made up of books bearing directly on the courses of instruction. The Ward Library, the gift of the heirs of C. L. Ward, Esq., of Towanda, is largely made up of books of general liter-

ature and history and Political Science. Each of the Technical Departments has also a collection of books, magazines, and other scientific publications in rooms in immediate connection with their lecture-rooms and laboratories. By the gift of \$5,000 Mr. Henry W. Oliver laid the foundation of the H. W. Oliver Chemical Library in the new Gayley Laboratory. The foundation has been added to by gifts from Prof. Edward Hart and others, and the incorporation of the College's collection of chemical works.

A friend of the College has bought and presented to the Henry W. Oliver Chemical and Metallurgical Library all the pamphlets, about three thousand in number, belonging to the library of the late Prof. Johannes Wislicenus, of the University of Leipsic.

The Literary Societies, also, have libraries numbering about 6,000 volumes, largely of a literary character, which valuably supplement the more solid libraries of the College.

The College Library contains a papyrus scroll, five feet long, from a mummy at Thebes, with a hieratic inscription—pronounced by Seyffarth the finest he has seen—presented by the late Hon. John W. Garrett, of Baltimore, of the Class of '37, and a collection of prints and medals of General Lafayette presented by the late President William C. Cattell, D.D., LL.D.

There is also a full-length portrait of Lafayette, by Healey, presented by the late Dr. Thomas W. Evans, of Paris.

ALUMNI ALCOVE.—A collection of books and pamphlets written by the Students, Alumni, Faculty and Trus-

tees of the College is being gathered and set apart as a "Lafayette Library" to represent the literary activities of the College. This unique and valuable collection now numbers about 369 volumes, and includes a full set of the College Calatogues from 1832 to the present time, the Commencement addresses, and official publications of the College.

The LIBRARIES have received gifts, which are hereby gratefully acknowledged, from the following individuals and institutions:

Individuals:

Edwin A. Barber; Rev. Stephen G. Barnes, D.D.; Frank H Chalfant, '81; Rev. S. J. Coffin, Ph.D. (53); Charles F. Chidsey, '64; Dr. Roland G. Curtin (3); Prof. Alvin Davison; Dr. B. Rush Field, '84; Estate of D. E. Filson (65), Rev. M. A. Filson, '98 (5); Rev. William E. Geil, '90; Rev. James I. Good, D.D., '72; Dr. Edgar M. Green, '83 (26); Oscar J. Harvey, '71; M. H. Houseman, '74; John W. Jordon; Rev. Edwin A. Keigwin, D.D., '91 (2); Percival Lowell; Harry A. McFadden, '84; Conway MacMillan; Prof. J. M. Mecklin; Dr. S. Weir Mitchell; Prof. William B. Owen, '71 (2); S. A. Perry; Prof. J. F. L. Raschen; M. Riebnaek; G. A. Schneebeli (2); Herman Simon (33); President E. D. Warfield; Ethan A. Weaver, '74; S. E. Weber; Dr. Eugene H. Wood, '55; Class 1907 (2).

Firms and Institutions:

Bryn Mawr College; "Book Fund," London; Herald and Presbyter; International Committee, Y. M. C. A.; Lake Forest University (2); Lehigh County Historical Society; Maryland Geological Survey; Mass. State Board of Health (3); Michigan State Board of Health (6); New Jersey State Geologist; New Jersey State Library; New York Department of Education (2); New York State Historian (2); New York State Library (10); Ohio Society of New York; Pennsylvania Railroad System; Pennsylvania Society, Sons of the

Revolution; Pennsylvania State Library (10); F. H. Revell Co.; West Virginia Geological Survey; University Club, New York City.

United States Government: Bureaus and Departments, viz.:

Bureau of Education (2); Bureau of Ethnology (2); Bureau of Labor; Department of Agriculture (3); Department of Commerce and Labor (3); Department of State; Library of Congress (3); Light House Board; National Museum (3); Smithsonian Institution (3); Supt. of Documents; War Department.

The Class of 1871 has given to the College a fund, the proceeds of which are to be used for the purchase of the publications of the Early English Text Society. The Library now contains a large and valuable collection of these.

The Class of 1875 at its reunion in 1905 by the gift of one thousand dollars established an alcove in the Library to be known as "The Francis A. March Alcove."

The Class of 1892 at its decennial reunion in 1902 established an alcove in the Library devoted to American literature. One hundred and eighty-two volumes have been purchased and additions will be made from time to time.

SCIENTIFIC COLLECTIONS.

These are extensive and valuable, and are rapidly increasing from year to year by gifts from societies and individual donors, and by special appropriations in addition to the fees for registration and matriculation.

Among the most valuable of the collections may be mentioned the extensive Herbarium, collected by Prof. Thomas C. Porter during forty years of enthusiastic labor; it is especially rich in North America plants and is believed to contain the most complete Flora of Pennsylvania in existence and the series of Ward's celebrated casts, illustrating Geology and Palaeontology.

The apparatus in the Department of Physics and Applied Mechanics, the instruments used in the Departments of Astronomy and Engineering, and the scientific equipment of the numerous and extensive laboratories, meet the demands of advanced instruc-

tion in these departments; a special feature, however, is the series of nine hundred Wall Charts, executed at the College by Gustave Garnier, under the direction of the Professors in the Departments of Astronomy, Chemistry, Physics and Applied Mechanics, Metallurgy, and Natural History. There are valuable models in Machine Drawing, Stone Cutting, Crystallography, and Architecture.

COLLEGE SOCIETIES.

LITERARY SOCIETIES.

The *Washington* and *Franklin* societies were organized early in the history of the College and are conducted by the undergraduates. Both societies have well-furnished apartments in Pardee Hall, and valuable libraries. They meet every Wednesday evening for literary exercises, consisting of orations, essays, and debates. A generous rivalry for College honors exists between them, and each year representatives of the two societies from the Junior Class engage in a public contest in oratory. On the day before Commencement the societies hold reunion meetings in their halls. These societies are an important part of College life and work, and *all the students are strongly advised to join them.*

BRAINERD EVANGELICAL SOCIETY.

The *Brainerd Evangelical Society*, as a society of inquiry, meets each Thursday evening and on the first Friday of each month in the interest of missions, and for the promotion of Christian effort. Its public anniversary is held on Sabbath evening of Commencement week, at which time a sermon is preached usually by some former member of the Society. In 1906 the preacher was Rev. A. E. Keigwin, D.D., '91, of New York.

BIOLOGICAL SOCIETY.

The *Biological Society* is for the purpose of making its members intelligent concerning the important biological questions of the day, enabling them to appreciate the value of research in nature. The membership consists of those students of the three upper classes who are either prospective or present members of the classes in Biology, and of such graduate students as are interested in the laws of life comprehended through the Natural History Sciences.

CHEMICAL CLUB.

The *Chemical Club* meets every Thursday at seven o'clock, P.M., for reading and discussing papers contained in the current chemical magazines, and to listen to lectures from visiting chemists. During 1906-'07 the Club listened to lectures from E. G. Acheson, Niagara Falls, N. Y.; Dr. M. T. Bogert and Dr. Charles F. Chandler, of Columbia University.

DEUTSCHER VEREIN.

This Society is organized to promote interest in the German language and literature. Meetings are held fortnightly. Lectures on German life and culture are given at each meeting.

EXPENSES.

The tuition is \$100 per annum in all departments. Sons of ministers of the Presbyterian Church and candidates for its ministry receive free tuition in the Classical Course, and are charged one-half tuition in the Technical courses.

The other College charges are as follows:

General Expenses.....	\$8 00	a term.
Library and Reading-room.....	5 00	“
Gymnasium.....	2 00	“

The annual College charges are, therefore, for those who pay tuition in full, \$145.

Entrance Fees.—Each student pays \$5 when he is registered for examination on entering College, and \$10 when he is matriculated, thirty days afterwards. These fees are appropriated to the Library Fund and to the increase of the scientific collections and apparatus. No fees are charged for diplomas.

Laboratories.—Apparatus for the use of students in the Chemical Laboratories will be furnished and charged in their account, and the charge canceled for that returned in good condition. Chemicals and all other materials will be charged according to the average cost. A deposit sufficient to meet these expenses is made on entering the Laboratories. Members of the Classical Department are admitted to all the privileges of the Laboratories while studying General Chemistry, and, for the present, without charge for the aid of the professor in attendance; each student will, however, pay for chemicals which he uses, and for any apparatus which he may break or injure. In the Physical Laboratory a fixed charge of \$5 per term is made for supplies and the use of apparatus.

Scholarships.—The endowed scholarships providing free tuition in the Classical Course will hold good for the Latin Scientific Course, but students in the other courses of the Pardee Scientific Department are re-

quired to pay one-half of the regular tuition fee in addition to the scholarship.

Aid is also given to young men of ability and good moral character who are dependent on their own efforts for their education. The amount will depend on the necessities of the applicant, but in no case will exceed the amount of the tuition fees in the Classical and Latin Scientific Courses, or one-half the tuition fees in the other Technical Courses. Application for such aid should be made to the President. No aid is granted to students pursuing special or incomplete courses of study.

BOARD, ROOMS, WASHING.

In all cases the place of boarding must be approved by the Faculty. The price of table board in clubs managed by the students at present averages from \$3 to \$3.50 per week. Board, including furnished room, in private families, is from \$4.50 to \$6 per week. Washing costs 40 cents per dozen pieces.

Unfurnished rooms in the College buildings rent for \$5 to \$30 a term (average \$15.88); unfurnished rooms adjacent to the College premises for \$12 to \$16 a term, or furnished rooms for \$15 to \$30 a term.

Students are expected to room in the College dormitories unless they receive permission to room elsewhere. If they do not occupy College rooms, they are subject to an assessment to meet the loss to the College for rooms left vacant. The reason for this rule is that the funds of the College have been invested in the dormitories in order to secure cheap and convenient lodgings for the students, and it is to the advantage of all that the build-

ings should be occupied, the income from the investment being essential to the work of the College, and the students being protected against exorbitant rents.

Information in regard to the selection of rooms can be had from Professor Moore, Inspector of College buildings, the buildings being open for inspection during each term, and three days preceding the first day of each term. Rooms are assigned only to students who have been admitted to College, or who present full certificates from authorized schools, in the order of their application.

The rules of the Board of Trustees require that all College bills shall be paid in advance. For the convenience of the students it is arranged that payments of the bills shall be made by the Seniors on the first Thursday of each term, by the Juniors on the first Friday, by the Sophomores on the first Saturday, and by the Freshmen on the first Monday. No student is regarded as regularly enrolled for any term until his bill is paid. He may be dropped from the roll for neglect of his bill at any time upon notice from the Treasurer to the Faculty.

Where it is impossible for a student to pay his bill on the day it is due, the Prudential Committee has power to extend the payment of the bill for not more than thirty days, provided that a written request is filed with the Treasurer *on the day the bill is due*, stating a satisfactory reason for the extension. A penalty of 10 per cent. will be added to every bill remaining unpaid after the expiration of thirty days, and no student whose bill is unpaid shall be permitted to take the term examinations. Those desiring the bill to be sent home, must

call at the Treasurer's office during the first week of the term, acquaint themselves with the items of the bill, make the request that it be sent and give the address to which it is to be sent.

The care and regulation of the dormitories are under the direction and management of a Board of House Representatives, elected by the students. House rules are enacted and enforced by the Board. The Parietal Committee, composed of the Inspector of Buildings and Officers of Inspection who reside in the dormitories, acts as a court of appeal.

Fuel Deposit.—The Treasurer also, on behalf of the Committee of Students, collects with the College bills \$6 at the beginning of the first and second terms for fuel. The unexpended balance, if any, is refunded by the Committee at the close of the year. Of late, the average cost for heating has been \$12.68 for each student in the steam-heated dormitories, and \$8.61 in the buildings heated by warm-air furnaces or stoves. The steam-heated dormitories are also lighted by electricity, the cost of which to each of the occupants is about \$6 a year.

A deposit of \$1 is also made at the beginning of each term to pay for public damages, the unexpended balance of which is returned to the student at the end of the year.

Annual Expenses.—Some money for books and other incidental expenses will be needed, but, with close economy, the total annual expenses—exclusive of tuition, clothing, and traveling expenses—need not exceed \$255, as will be seen from the following summary:

	Liberal.	Moderate.	Minimum.
General College Expenses.....	\$24 00	\$24 00	\$24 00
Charge for College Reading-rooms, Gymnasiums, etc.....	21 00	21 00	21 00
Board, 36 weeks, at \$3.00 to \$4.00..	144 00	117 00	108 00
Rent of College-room, \$15 to \$90..	90 00	36 00	15 00
Light and Fuel.....	18 00	15 00	12 00
Washing.....	25 00	16 00	9 00
Tuition.....	100 00	100 00	100 00
Books and Stationery.....	38 00	21 00	16 00
	\$460 00	\$350 00	\$305 00
Deduct for Sons of Ministers, <i>et al.</i> , in Classical Course.....			100 00
			\$205 00
Deduct for same in other courses..			\$50 00
			\$255 00
Lowest charges for nec- } Classical..			\$205 00
essary expenses..... } Technical..			255 00

Laboratory fees and damage assessment, which vary in amount, must also be added, while the personal expenses for clothing, etc., must be estimated according to individual experience. The first year will be made more expensive by the fees for registration and matriculation, and furnishings for room; \$300 will therefore be a small allowance.

Parents and guardians at a distance may deposit funds with some member of the Faculty, who will pay particular attention to the pecuniary concerns of the student, settling his bills, and transmitting an account of the expenditure, for which services he will charge a commission. It is strongly recommended that parents furnish their sons with little beyond what will meet their necessary expenses.

BEQUESTS AND DEVISES.

Each State has special statutory regulations in regard to wills, and it is most important that all testamentary papers be signed, witnessed, and executed in all other respects according to the laws of the State in which the testator resides. In all cases, however, the name of the corporation must be accurately given, as in the following forms:

I give, devise, and bequeath to "The Trustees of Lafayette College," in Easton, Pennsylvania their successors and assigns forever, the sum of dollars, to be invested by said corporation in good real estate security, and the interest accruing therefrom to be applied to the support of the Professors in said College.

I give, devise, and bequeath a certain lot situated, etc., to "The Trustees of Lafayette College," in Easton, Pennsylvania, and to their successors and assigns forever, for the uses and purposes of said College, according to the provisions of its charter.

PRIZES.

The following prizes are offered annually:

THE FRANCIS A. MARCH PRIZE IN ENGLISH.

A prize of thirty dollars in books was given from 1862 to 1881 by the late Rev. William C. Fowler, LL. D., of Durham, Connecticut, and since 1881 has been continued by Henry A. Potter, M.S., Class of '77, of New York, under the title of "The Francis A. March Prize," upon the following conditions:

"A committee of at least three shall be chosen by the Faculty to determine which student of the Senior Class has made the greatest proficiency in English Philology.

"The decision of the committee is to be made after attending an examination in some English classic, conducted by the Professor in English, and after reading essays written by the several members of the class, which shall contain a discussion of the language of some English classic."

The subject in 1907 will be the works of Sir Walter Scott.

THE ASTRONOMICAL PRIZE.

A prize of thirty dollars in gold is awarded to the student making the greatest progress in the study of Astronomy in the Senior year.

MATHEMATICAL PRIZES.

Two prizes of the value of twenty dollars each are offered in the Department of Mathematics to those students of the Junior Class, one in the Classical and general courses of the Scientific Department, and one in the Technical Departments, who shall have exhibited during the first two years of the course the greatest proficiency in the study of Mathematics.

These prizes were founded, as was the astronomical prize above-mentioned, in 1867, by Professor Traill Green, M.D., LL.D.

THE LOUNSBURY PRIZE IN CHAUCER.

A prize, consisting of books, is given to that student of the Sophomore Class who shall present the best essay upon some one of the works of Chaucer. This prize was given in 1896 by Thomas R. Lounsbury, Professor of English at Yale University, and will be continued by friends of the College as the Lounsbury Prize in Chaucer.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE.

A prize, consisting of books of the Early English Text Society, of London, is given to that student of the Junior Class who shall at the close of the Junior year pass the best examination in "English before Chaucer." The examination is based upon selected texts announced from year to year, which in 1907 will be from Beowulf.

This prize was founded in 1871.

THE NEW SHAKSPERE SOCIETY'S PRIZE.

A prize of publications of the "New Shakspeare Society," of London, is awarded to that member of the Junior Class who passes the best general examination upon Shakspeare, his works, life, character, etc.

THE CLASS OF '83 PRIZE.

A prize of the value of fifteen dollars is annually awarded to that member of the Sophomore Class who shall have attained the highest standing in his division of the class in Trench on The Study of Words.

This prize was founded by the Class of 1883 at their graduation.

COLEMAN BIBLICAL PRIZES.

Three prizes, each of the value of twenty dollars, are awarded to those students of the Freshman Class who have attained the highest standing in the several divisions of Biblical study in that year.

These prizes were founded by the Rev. Lyman Coleman, D D., in 1880.

PRIZES IN ORATORY.

The Washington and Franklin Literary Societies appropriate one hundred dollars a year for prizes in oratory. Four contestants are chosen from each Hall to take part in the Junior Oratorical Contest, which is held in May. In the presence of a public audience three Judges, approved by the Faculty, hear the speakers and award the prizes. Their decision is based on the merits of the performances as to originality and force, with reference both to composition and delivery. The first prize is fifty dollars, the second prize thirty dollars, and the third prize twenty dollars.

PRIZES IN DEBATE.

Three prizes, of the total value of fifty dollars, are awarded to the successful competitors in a Senior contest in debate, held on Washington's Birthday in each year, between three contestants from each of the literary societies, chosen by a competitive debate in each society prior to December 1st in the previous year. The amount of the prizes and the conditions of the award are similar to the Junior Oratorical Contest. The first of these contests was held in 1894. The subject for debate in 1907 is:

"RESOLVED, That the increase of naval armaments is an unnecessary burden and a menace to the peace of the world."

CIVIL ENGINEERING PRIZE.

A prize of the value of fifty dollars, the gift of Carroll Phillips Bassett, C.E., Ph.D., of the Class of 1883, is annually awarded to that member of the graduating class who presents the best graduating thesis and attains the highest standard of scholarship in the Civil Engineering course.

THE PARK PRIZE IN LATIN.

A prize of fifteen dollars for the Latin Department has recently been founded by Mr. Samuel R. Park, A.M., '84. In 1906 it will be awarded, on the work of the second and third terms Freshman Class, for excellence in Horace.

HISTORICAL ESSAY PRIZE.

A prize consisting of a copy of his work, "*The Marquis de Lafayette in the American Revolution*," is given annually by Charlemagne Tower, Jr., LL.D., of Philadelphia, United States Minister to Germany, to that member of the Senior Class who shall, on or before the first day of October, present the best essay on some subject connected with the relations of *France and the United States*. The essays must not exceed three thousand words in length. The subject for the year 1907 is: "*The value of the French Alliance in the American Revolution*."

THE CHEMICAL ESSAY PRIZES.

A prize of five dollars in books is awarded each term to that member of the Junior or Senior Class who shall present the best theme term on some Chemical subject.

THE GILBERT PRIZE IN OLD ENGLISH.

By the will of Howard Worcester Gilbert, who died in Chester County, March 5th, 1895, a bequest was left to the College, with the provision that a gold medal of the value of forty dollars should be awarded every two years to the student writing the best essay on the Old English Language and Literature, beginning with *Beowulf*, in the earliest Anglo-Saxon period, and extending down to the year 1070. Should the competitors be of equal merit, preference is to be given to residents of Pennsylvania.

The medal is an inch and three-fourths broad, three-sixteenths of an inch thick, and contains on its face a relief portrait of King Alfred, with the date 871-901, surmounted by the Anglo-Saxon phrase, "Naes he gold hwaete." The reverse shows a garland encircled with the legend, 'Howard Worcester Gilbert Old English Prize. Founded 1895.' Space is left for the name of the recipient.

This prize will be awarded at the Commencement of 1907. It is open to competition of students of Anglo-Saxon in the graduate courses of 1906-'07 and 1908-'09. The essay must be handed in by May 1st, 1907.

'85 PRIZE IN PHYSICS.

The Class of 1885 founded a prize in 1897 in the sum of \$500, the annual income of which is given to that member of the Junior Class who attains the highest rank in the studies of Mechanics and Physics.

THE BLOOMBERGH PRIZE.

The Class of 1888 at its Decennial Reunion subscribed the sum of \$500, the annual income of which is awarded to that member of the Junior Class who shall attain the greatest proficiency in the study of the French and German languages and their literatures.

THE B. F. BARGE GOLD MEDAL.

A prize of a gold medal of the value of \$100 was founded by Benjamin F. Barge, Esq., of Mauch Chunk, Pa., to be awarded to that member of the Senior Class who shall deliver the best oration in an annual contest to be held on Memorial Day, May 30th. The contestants, not more than six in number, are to be chosen by a committee of the Faculty from those members of the Senior Class, who shall hand in orations on or before May 1st upon topics assigned by the committee not later than March 15th of each year.

BARGE MATHEMATICAL PRIZES.

By the bequest of the late Benjamin F. Barge, Esq., of Mauch Chunk, three prizes have been established for excellence in mathematical studies. These prizes will be awarded to members of the Sophomore Class for excellence in the solution of original problems

THE R. B. YOUNGMAN GREEK PRIZE.

The Class of 1884, at its vigintennial reunion, subscribed the sum of \$500, the income of which is to be awarded to that member of the Sophomore Class who shall attain the greatest proficiency in Greek.

NOTE.—In all cases where a prize is awarded to an essay or oration the successful competitor must hand to the proper authority two typewritten copies of his production before receiving the prize, if he is requested to do so.

RECENT ADDITIONS.

THE DEPARTMENT OF MINING ENGINEERING AND GRAPHICS has received Drawings of Electric Mine Pumps from Allentown Rolling Mill, Allentown; Set of Mineral Treatise Notices, A. A. Wren, Montana; Geodetic Survey Reports, Prof. S. J. Coffin; 42 Small Castings, F. W. Frederick, Pittsburg; Package of Traverse Sheets, J. E. Andersen, Hazleton; Drawings, Maps and Minerals, Oliver Iron Mining Co., Duluth, Minn.; 55 Patterns, Small Mine Machine Parts, D. A. Hatch, Scranton.

THE DEPARTMENT OF CHEMISTRY AND METALLURGY has received gifts from The General Chemical Company, New York, N. Y.

THE DEPARTMENT OF ELECTRICAL ENGINEERING has received valuable favors from Mrs. Katharin Allabach, Easton, and Dr. Edgar M. Green, Easton; D. C. Pomeroy, '05, Baltimore, a Cooper-Hewitt Mercury Arc Rectifier.

THE DEPARTMENT OF BIOLOGY has received gifts from Joseph Barrett, Katonah, N. Y.; Dr. Edgar M. Green, Easton; Dr. Charles McIntire, Easton.

DEGREES CONFERRED.

HONORARY DEGREES.

June 20, 1906.

DOCTOR OF LAWS.—Hon. Lucien W. Doty, '70, Greensburg, Pa.

DOCTOR OF DIVINITY.—Rev. A. Edwin Keigwin, '91, New York, N. Y.

MASTER OF ARTS.—Henry J. Steele, Esq., Easton.

DEGREES IN COURSE.

June 20, 1906.

BACHELOR OF ARTS.—H. A. Briggs, Pa.; H. A. P. Fischer, Pa.; O. L. Hellmann, Conn.; R. L. Horner, Md.; F. A. Neff, Pa.; P. R. Phillips, Pa.; C. F. Schaeffer, Pa.; A. B. Sharpe, Pa.; H. R. Smith, Pa.; F. E. Stockton, Pa.; J. J. Thomas, Pa.; R. E. Thomas, N. J.; S. P. Uhler, Pa. Total, 13.

BACHELOR OF PHILOSOPHY.—E. A. Anders, Pa.; R. W. Baker, Utah; E. I. Brown, N. J.; F. S. Downs, Del.; F. A. English, N. J.; W. H. Fee, India; W. T. Foster, N. J.; J. H. Gaskins, Pa.; E. W. Grove, N. J.; T. L. Hoskins, Pa.; W. S. Lare, N. J.; A. W. McCandless, Pa.; W. U. More, N. J.; A. J. Odenwelder, Jr., Pa.; F. E. Reeder, Pa. Total, 15.

BACHELOR OF SCIENCE (in Chemistry).—E. A. Aston, Pa.; H. K. Hauck, Pa.; H. H. McIntire, N. J.; J. W. McIntire, N. J.; J. F. Reid, Pa.; F. H. Ronk, Pa.; H. D. Saylor, Pa. Total, 7.

CIVIL ENGINEER.—J. G. Alexander, Pa.; G. C. Andrews, N. Y.; J. W. Colliton, N. Y.; R. D. Dietrich, Pa.; A. H. Fretz, Pa.; W. C. Hall, N. J.; J. B. Hawley, Pa.; R. H. Hellick, Pa.; J. F. Hunter, Pa.; S. A. Reinhard, Pa.; J. H. Reinholdt, Iowa; T. A. Shields, N. J.; W. W. Shuster, Pa.; F. L. Smith, Pa.; F. X. Soete, Pa.; C. E. Stryker, N. J.; B. A. Taylor, Pa.; O. Wack, Pa. Total, 18.

MINING ENGINEER.—C. R. Atkinson, Md.; R. W. Hay, Pa.; J. M. Smith, Minn.; F. W. Uhler, Minn. Total, 4.

ELECTRICAL ENGINEER.—R. G. Barr, Pa.; H. V. Goodrich, N. Y.; E. C. Laudemberger, Pa.; H. C. Moyer, Pa.; F. M. Newberry, Pa.; W. J. Ruch, Jr., Pa.; J. P. Uhler, Pa. Total, 7.

MASTER OF ARTS.—J. F. L. Raschen, T. B. Shannon, 1898.

Total—First Degree, 64; Master's Degree, 2.

COMMENCEMENT DISTINCTIONS, 1906.

HONORS.—Edward Ingersoll Brown, Boonton, N. J., Frederick Eugene Stockton, Wilkinsburg; Charles Elmer Stryker, Phillipsburg, N. J.

ORATIONS.—Eugene A. Anders, Norristown; Herman Ario Briggs, Nescopeck; John Whitney Colliton, Newfane, N. Y.;

Francis Shunk Downs, Dover, Del.; Henry A. Picking Fischer, Easton; Augustus Henry Fretz, Doylestown; Erwin Willard Grove, Ringoes, N. J.; Henry Kinsey Hauck, Easton; John Bernard Hawley, Wilkes-Barre; Reuben Harold Hellick, Easton; William Uhlinger More, Bridgeton, N. J.; Frank Amandus Neff, Slatington; Claude Francis Schaeffer, Easton; Hamilton Ross Smith, Media; Joseph John Thomas, Hazleton; Sayre Pancoast Uhler, Easton; Otis Wack, Lansdale.

PRIZES AWARDED.

SENIOR PRIZEMEN.

THE FRANCIS A. MARCH PHILOLOGICAL PRIZE: Frank A. Neff, Slatington.

THE ASTRONOMICAL PRIZE: Erwin W. Grove, Ringoes, N. J., and H. Ross Smith, Media.

THE BASSETT PRIZE IN CIVIL ENGINEERING: Divided equally between Reuben H. Hellick, Easton and Charles E. Stryker, Phillipsburg, N. J.

SENIOR DEBATE.

QUESTION: *Resolved, That the present party organization is incompatible with good government in city, state, and nation.*

SPEAKERS.

Washington Hall.

William S. Lare, *negative*
H. Ross Smith, *affirmative*.
E. Graham Wilson, *affirmative*.

Franklin Hall.

Edward I. Brown, *negative*.
Frederick E. Stockton, *affirmative*.
Sayre P. Uhler, *negative*.

FIRST PRIZE: Sayre P. Uhler, Easton.

SECOND PRIZE: E. Graham Wilson, Philadelphia.

THIRD PRIZE: Edward I. Brown, Boonton, N. J.

B. F. BARGE GOLD MEDAL, Erwin W. Grove, Ringoes, N. J.

THE CHEMICAL ESSAY PRIZES (Junior or Senior).

SECOND TERM: William L. Jackson, '07, Chester, N. Y., and Samuel C. Straub, '07, Easton.

JUNIOR PRIZEMEN.

THE MATHEMATICAL PRIZES:

TECHNICAL DEPARTMENT: Thomas I. Howard, Duquesne, and Roie S. Bristol, Lima, N. Y.

THE EARLY ENGLISH TEXT SOCIETY'S PRIZE: Edward W. Coffin, Easton.

THE NEW SHAKSPERE SOCIETY'S PRIZE: Harold D. Smith, Phillipsburg, N. J.

JUNIOR ORATORICAL PRIZES.

Contest May 15th, 1905.

SPEAKERS.

Franklin Hall.

Claudius J. Fingar,
William C. Perez,
Edward H. Swartz,
Bela B. Smith, VI.

Washington Hall.

Robertson T. Barrett.
David W. Griffith.
Frank H. Hennessy,
Floyd R. Shafer.

FIRST PRIZE: Frank H. Hennessy, Haworth, N. J.

SECOND PRIZE: Robertson T. Barrett, Katonah, N. Y.

THIRD PRIZE: Bela B. Smith, VI, Belle Vernon.

THE CLASS OF '85 PRIZE IN PHYSICS: Harvey C. Updegrove, Easton.

THE BLOOMBERGH PRIZE IN MODERN LANGUAGES: Frank R. Bacon, Bridgeton, N. J., and Willard Springer, Wilmington, Del.

SOPHOMORE PRIZEMEN.

THE LOUNSBURY PRIZE IN CHAUCER: Augustus S. Hutchison, Belvidere, N. J.

CLASS OF '83 ENGLISH PRIZE: Clinton J. Ruch, Lower Saucon; Nathaniel Jacobs, Plymouth.

THE BARGE MATHEMATICAL PRIZES: Nathaniel Jacobs, Plymouth; John F. Williams, Martin's Ferry, O.; James H. Smith, Berwick.

FRESHMAN PRIZEMEN.

LYMAN COLEMAN BIBLICAL PRIZES.

SECTION A: David R. Edwards, Chatham, N. J.; John W. Green, Easton.

SECTION B. Alvah R. McLaughlin, Dunmore; Samuel J. Mills, Chefoo, China.

SECTION C: Irvin J. Shafer, Reading.

THE PARK PRIZE IN LATIN: David R. Edwards, Chatham, N. J.
 THE R. B. YOUNGMAN GREEK PRIZE: Clinton J. Ruch, Lower
 Saucon.

CLASS MONITORS.

Appointed for general excellence in study:

SENIOR CLASS: C. E. St. John.

JUNIOR CLASS: C. J. Ruch.

SOPHOMORE CLASS: D. E. Edwards.

FRESHMAN CLASS: J. H. Dalrymple and P. A. Swartz.

Theses presented by Candidates for Degrees in the Technical
 Courses of the Pardee Scientific Department.

June 20, 1906.

1. Derivatives of Orthosulfonitrobenzoic Acid.
 ERNEST ARTHUR ASTON, Wilkes-Barre.
 HENRY DEWITT SAYLOR, Easton.
2. A Test of the Efficiency of a One Hundred Foot Portland Cement
 Kiln.
 FRANK HANNAMAN RONK, West Chester.
3. The Production and Economic Use of Slags and Cinder in the
 Metallurgy of Iron and Steel.
 HENRY KINSEY HAUCK, Easton.
4. Extraction of Gallium from Flue Dust.
 JAMES FRED REID, West Chester.
5. Metanitrosulfobenzoic Acid.
 JOSEPH WARE MCINTIRE, Bridgeton, N. J.
6. A Chemical Examination of the Seed of the Siamese Mangrove.
 HOWARD HALEY MCINTIRE, Bridgeton, N. J.
7. Study of a Three Horse-Power Induction Motor.
 RAYMOND GRAY BARR, Pittsburg.
 JACOB PETER UHLER, Stockertown.
8. The Oscillograph as Applied to Alternating Current Problems.
 HERBERT CHARLES MOYER, Easton.
9. Report upon South Side Station of Easton Power Co.
 ERNEST CLIFFORD LAUDENBERGER, Freemansburg.
 FRANK MILTON NEWBERRY, Tunkhannock.

10. Study of Thermo-Electric Generators.
WILLIAM JAMES RUCH, JR., Pittsburg.
HARRISON VAN S. GOODRICH, Brooklyn, N. Y.
11. Drainage of Cranberry Colliery at Hazleton, Pa.
RUGER WILSON HAY, Easton.
JAY MARK SMITH, Duluth, Minn.
12. The Lehigh Portland Cement Industry.
FRED WALTER UHLER, St. Peter, Minn.
CHESTER REESE ATKINSON, Rising Sun, Md.
13. Design of a Water Supply System.
JOHN WHITNEY COLLITON, Newfane, N. Y.
14. A Study of the Use of Sulphur for Sewer Joints.
JOSEPH GRUBB ALEXANDER, Scranton.
AUGUSTUS HENRY FRETZ, Doylestown.
15. Test of a Pumping Plant.
WILLIAM CUMMINGS HALL, Cape May City, N. J.
JOHN BERNARD HAWLEY, Wilkes-Barre.
OITS WACK, Lansdale.
16. Test of Water Meters.
GEORGE CROWELL ANDREWS, Buffalo, N. Y.
17. Design of a Sewerage System.
FRANCIS LE ROY SMITH, Wellsboro.
BASCOM AUGUSTUS TAYLOR, Wyalusing.
18. Effect of Freezing on the Strength of Wood.
REUBEN HAROLD HELICK, Easton.
CHARLES ELMER STRYKER, Phillipsburg, N. J.
19. Formula for the Weight of Plate Girders.
SOLON AARON REINHARD, Kutztown.
20. The Effect of Oils on the Strength of Wood.
JOSHUA FLETCHER HUNTER, Wyncote.
WILLIAM WEAVER SHUSTER, Shamokin.
21. The Effect of Loam on the Strength of Cement Mortar.
THOMAS ALDEN SHIELDS, Hackettstown, N. J.
FRANK XAVIER SOETE, Honesdale.
22. The Effect of Oil on the Strength of Cement Mortar.
RUSSELL DUNBAR DIETRICH, Easton.
JOHN HERMAN REINHOLDT, Manning, Ia.

THE ALUMNI ASSOCIATION.

The Alumni Association is composed of Graduates of the College and such former students as left College before graduation, in good standing, as may be elected. The annual meeting is held on Tuesday preceding Commencement Day.

The Association has the privilege of choosing six members of the Board of Trustees, who hold office for six years. In June, 1906, William McMurtrie, Ph.D., '71, of New York City, and Andrew F. Derr, '75, of Wilkes-Barre, were chosen. In the spring of 1908 two more will be voted for.

The Executive Committee is as follows: McCluney Radcliffe, M.D., '77, chairman, Philadelphia; S. C. Smith, '72, Phillipsburg, N. J.; Henry D. Maxwell, '82, Easton; Jesse Grant Roe, '87, New York City; William H. Kinter, '97, New York City; T. A. H. Hay, '76, Easton.

It is desirable to keep up the full record, so long maintained, of the residences, occupations, literary efforts, and public services of the alumni and former students of the College.

Information is solicited in regard to these points, and also in reference to matters appropriate to the obituary record, which is annually prepared for the Alumni Association.

Each Alumnus is asked to send his personal record, carefully revised to date, to the Secretary before May 1, 1907.

ALUMNI ASSOCIATION OF LAFAYETTE.

FRED R. DRAKE, '86, Easton.....*President.*
CASPER DULL, '77, Harrisburg.....*Vice-President.*
REV. J. F. STONECIPHER, D.D., '74, Easton..*Sec. and Treasurer.*

LOCAL ASSOCIATIONS.

THE LAFAYETTE ALUMNI ASSOCIATION OF NORTH-EASTERN PENNSYLVANIA.

GEORGE W. PHILLIPS, '78, Scranton.....*President.*
W. J. WILLIAMS, '02, Wilkes-Barre.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF PHILADELPHIA AND VICINITY.

REV. JOHN B. LAIRD, D.D., '92, Frankford.....*President.*
WILLIAM L. KINTER, 1338 Spruce Street.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF NEW YORK
AND VICINITY.

JAMES GAYLEY, '76, 71 Broadway, New York.....*President.*

LEWIS H. ALLEN, '94, 35 Nassau Street, New York.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF THE WEST
BRANCH.

FRED H. PAYNE, '88, Williamsport.....*President.*

R. FLEMING ALLEN, '90, Williamsport.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF CENTRAL
PENNSYLVANIA.

REV. D. K. FREEMAN, D.D., '56, Huntingdon.....*President.*

REV. A. N. HAGERTY, '81, Carlisle.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF WESTERN
PENNSYLVANIA.

SIMON CAMERON LONG, '77, 43d Street, Pittsburg.....*President.*

JOHN F. TIM, '01, 511 Park Bldg., Pittsburg.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF MARYLAND.

ROBERT H. SMITH, '67, 53 St. Paul Street, Baltimore..*President.*

PEARCE KINTZING, M.D., '81, Baltimore.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF CHICAGO
AND VICINITY.

*A. B. CAMP, '84, Chicago.....*President.*

L. F. GATES, '97, 378 Wabash Ave., Chicago.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF THE NORTH-
WEST.

REV. GEO. C. POLLOCK, D.D., '61, Litchfield, Minn.....*President*

HON. JAMES T. HALE, '77, Duluth, Minn.....*Secretary.*

THE LAFAYETTE ALUMNI ASSOCIATION OF WASHING-
TON, D. C.

JAMES F. R. APPLEBY, M.D. '64, Georgetown.....*President.*

SNOWDEN ASHFORD, '88, 918 Farragut Square.....*Secretary.*

JUNIOR ALUMNI ASSOCIATION OF EASTON.

C. F. OLDY, '00, Easton.....*President.*

H. B. MOON, '99.....*Secretary.*

* Died April 17, 1906.

STUDENTS.

GRADUATE STUDENTS.

S B. Gilhuly, A. M., N J.....	History and English Literature,	Lafayette, '86.
J. B Hench, A M., Pa.....	Latin, Lafayette, '83.	
H. C. Mohn, A. M., Pa.....	Philosophy and Pedagogy,	Lafayette, '83.
A. Roberts, Ph. B., M. S., Pa...	History and Political Science,	Lafayette, '99.
C. F. F. Garis, Ph. B., Pa.....	Mathematics and German,	Lafayette, '03.
E. F. Farquhar A. B., Pa.....	English and Philology,	Lafayette, '05,
C. F. Pfatteicher, A. B., Pa....	Philosophy and English Literature.	Lafayette, '03.
W. M. Smith, A. B., Pa.....	Mathematics and Astronomy,	Lafayette, '03.
J W. Colliton. C. E., Pa.....	Mining Engineering,	Lafayette. '06.
J. M. Shelley, A. B., Pa.....	Philosophy and Biology,	Lafayette, '03.

GRADUATES..... 10

SENIOR CLASS.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Thomas Hoskinson Acker.....	C. E...	Washington, D. C.	84 N.
Oscar Wilson Ackerman.....	L.....	Ackermansville.....	Home.
James Patterson Alexander,..	E. E...	Hollidaysburg...	105 McK.
William Clarke Alexander, Jr..	C.....	Washington, D.C.	105 McK.
Charles Robbins Anderson....	C. E...	Bloomsbury, N. J...	Home.
Frank Rockwood Bacon.....	C.....	Bridgeton, N. J.....	87 N.
John Barberey	C. E...	Easton.....	216 Pine.
Robertson Treloar Barrett....	C.....	Katonah, N. Y..	D. K. E.
Walter J. Berry†.....	Ch.....	Brooklyn, N. Y....	139 F.
Arthur Clifton Boyce.....	L.....	Tuscola, Ill.....	42 S.
Edward Welles Coffin.....	C.....	Easton.....	Prof. Coffin.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
James Algernon Darsie†	C. E.	Pittsburg	T. D. Chi.
Norman Jay Dicks	E. E.	West Chester	63 B.
Harold Edgar Diehl	C.	Easton, Lachenour Heights.	
Russell Dunbar Dietrich, C.E.	E. M.	Easton	—
Erastus Raymond Doud†	Ch.	Hazleton	T. D. Chi.
Walter Claude Dutot	C.	Stroudsburg	103 McK.
Walter French Evans	E. M.	Beaver	T. D. Chi.
Mark Dee Ewell	C. E.	Wyoming, N. Y.	33 S.
Claudius James Fingar	C.	Germantown, N. Y.	26 S.
Edward Dietrich Flad	C. E.	Easton	802 Cattell St.
John Leon Freeman	C. E.	Norristown	109 McK.
Edwin Clark Gilland	C.	Shamokin	D. K. E.
Thomas Henry Gilland	L.	Greencastle	101 McK.
Robert Van Valzah Glover	C. E.	Mifflinburg	139 F.
David Walter Griffiths	L.	Wilkes-Barre	14 S.
John Andrew Hamilton	C. E.	Mercer	90 N.
Joseph Henry Hand	C.	Wilkes-Barre	107 McK.
Willis Bixler Hawk	L.	Phillipsburg, N. J., 690 Main S.	
Reginald Stanley Hemingway	C.	Bloomsburg	101 McK.
Frank Hancock Hennessy	L.	Haworth, N. J.	69 B.
John Royden Hess	L.	Phillipsburg, N. J., 163 N. Main.	
William Vicary Hetchie	C. E.	Freedom	73 K.
Paul Kingsley Holgate	L.	Scranton	138 F.
Howard Clifford Hottel	Ch.	Trenton, N. J.	84 N.
Ziba Raymond Howell	L.	Centremoreland	97 McK.
Joseph Simeon Illick	C.	Easton	Home.
Albert Alonzo Johnson	C. E.	Covington	151 P.
Frank Simon Johnson	C. E.	Easton 677	Northampton.
Walter Ellwood Kiefer	C.	Easton	821 Cooper.
Chester Tome Kimble	C. E.	Port Deposit, Md.	92 McK.
William Graham Knox, B.S.	Sp. Ch.	Charlotte, N. C.	114 Cattell.
Rush Tilgham Lerch	E. E.	Easton	210 Burke.
Jacob Daniel Lewis	E. E.	Elmira, N. Y.	33 S.
Harry Arthur Logan	E. E.	Scranton	D. K. E.
Charles Dean McClary, Jr.	L.	Phillipsburg, N. J., 89 Bullman.	

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Robert Cooper McComb...	E. E.	Haddonfield, N. J.	26 S.
Harold Lathrope MacAskie...	C.	Scranton	73 K.
Clyde Austin Miller.....	C. E.	Waterbury, Conn.	92 McK.
Thomas Osborn.....	C. E.	Wainscott, N. Y.	71 B.
William Carlos Perez.....	C.	Camden, N. J.	Brd.
Empey Arthur Robertson....	G. S.	Newark, N. J.	132 M.
Charles Edward St. John.....	C. E.	Scranton	Prof. Hardy.
Edward Holmes Schwartz†....	G. S.	Pennsburg	131 M.
Floyd Raymond Shafer.....	L.	Tatamy	Home.
Frank Lester Sherrer†.....	C.	Easton	T. D. Chi.
Justus Mitchell Silliman.....	C. E.	Easton	122 McCartney.
Thomas Boughton Silliman .	E. M.	Easton	122 McCartney.
Bela Buck Smith, VI.....	C.	Belle Vernon	91 McK.
Edward Leo Smith.....	L.	Phillipsburg, N. J., 260 Sitgreaves.	
Harold Davis Smith.....	C.	Phillipsburg, N. J.	135 F.
Harvey Snook.....	C. E.	Branchville, N. J.	132 M.
Daniel Webster Snyder, Jr....	E. E.	South Easton	Seitz Ave.
Frank Arndt Souders.....	L.	Phillipsburg, N. J., 71 Mercer.	
Willard Springer, Jr.....	C. E.	Wilmington, Del.	D. K. E.
Markley Stevenson.....	C. E.	Camden, N. J.	137 F.
Christian Earle Stiver.....	C. E.	Nazareth	131 M.
Samuel Christian Straub.....	Ch.	Easton	43 S. 5th.
William Rowland Tapscott....	C. E.	Easton	941 Washington
Rolland Marshall Teel.....	L.	Hackettstown, N. J.	66 B.
Howard Bingham Thomas....	C.	Easton	21 S. 14th.
John Milton Thomas.....	C. E.	Edwardsdale	Brd.
Harvey Claude Updegrave....	C.	Easton	Monroe.
J. Harry Van Arsdale.....	L.	Castile, N. Y.	113 McK.
Frederic Sager Welsh.....	C.	Bloomsburg	142 P.
Samuel Henry Wilde.....	C.	Bloomfield, N. J.	66 B.
Roger Sylvanus Williams....	L.	Wilkes-Barre	140 F.
Edmund Graham Wilson.....	C.	West Philadelphia	Brd.
Daniel Barlow Woolcock	C. E.	New Castle	97 McK.

JUNIOR CLASS, 1908.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Charles Elwood Albert.....	C. E...	Pen Argyl.....	43 S.
Charles Lupfer Albert.....	C.....	Bloomsburg.....	68 B.
Donald Budd Armstrong.....	L.....	Easton. 209 Northampton.	
Thomas Ellison Arnold†.....	Ch.....	Pen Argyl.....	43 S.
Benjamin Mernard Aycrigg....	C. E...	Walden, N. Y.....	77 K.
Howard Benjamin Bartolet....	C.....	Lehighton.....	46 S.
Wesley Nathaniel Boyer†.....	C. E...	Weissport.....	162 E.
Roie Smith Bristol.....	C. E...	Lima, N. Y.....	38 S.
Floyd Ambrose Brotzman.....	L.....	Easton. 740 Wilkes-Barre.	
Henry Lewis Buckley.....	C.....	Easton.....	28 N. 3d.
Martin Burns Buckley†.....	C. E...	Boston, Mass. 838 Wolf St.	
John W. Caswell.....	E. M...	Lime Hill.....	37 S.
Louis Charles Chandler.....	Ch.....	Scranton.....	102 McK.
William Warren Craig.....	L.....	New Germantown, N. J., 68 B.	
Wade Hampton Davidson.....	C.....	Junction, N. J....	Home.
William George Davis.....	C.....	Easton.....	428 Berwick.
George Oliver Deshler.....	E. M...	Bangor.....	79 N.
Elias Doremus.....	C. E...	Gladstone, N. J....	34 S.
Wallace Bruce Drinkhouse ...	L.....	Easton 247 Spring Garden.	
Charles Roy Ellicott.....	Ch.....	Easton.....	Beth. Road.
James Wilson Rhoades Engle .	C.....	Hazleton.....	T. D. Chi.
David Reese Evans.....	C.....	Plymouth.....	24 S.
Maurice Cooke Fairchild†.....	E. M...	Paterson, N. J..	99 McK.
William Josiah Fetter.....	C.....	Landisburg.....	81 N.
Erle Leighton Flad.....	E. M...	Easton.....	802 Cattell.
Charles James Folk.....	C. E...	Phillipsburg, N. J., 62 Lewis St.	
Julius Freund.....	E. M...	Honesdale.....	145 P.
Leo Alvin Gates.....	C.....	Hornellsville, N. Y..	44 S.
Raymond Lewis Gebhardt....	C. E...	Easton.....	25 S. 13th.
John William Giles.....	E. E...	Phillipsburg, N. J., 257 Washington.	
Charles Edmund Gilmore.....	C.....	Williamsport....	D. K. E.
Henry Green.....	Ch.....	Easton Cor. Pierce and McC.	
Silas Maxwell Haight†.....	C. E...	Elmira, N. Y.....	150 P.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
David Lyman Harstine.....	L.....	Ferndale.....	30 S.
William Alonzo Hauck†.....	E. M...	Easton 1044	Northampton.
Clarence Alexander Hensey...	G. S...	Washington, D. C...	140 F
Harry Moore Hirst.....	E. M...	Lansdowne.....	121 McK.
Francis Michael Howard.....	E. M...	Duquesne.....	130 M.
Thomas Lawrence Howard...	E. M...	Duquesne.....	130 M.
Augustus Seeley Hutchison..	L.....	Belvidere, N J.....	27 S.
Nathaniel Jacobs.....	L.....	Plymouth.....	38 S.
Harry Dill Kinney.....	E. M...	Easton.....	T. D. Chi.
Archibald Spencer Kirkpatrick†.....	C. E...	Chatham, N. J.....	142 P.
Donald Morris Kirkpatrick†...	C.....	Easton.....	123 Reeder.
Paul Howard Kleinhans.....	L.....	Easton.....	R. F. D. 1.
William Loyd Kline.....	C.....	Delabole 912	Wilkes-Barre.
George Albert Koerber.....	E. E...	Hazleton.....	149 P.
Eltinge Silkman La Bar†.....	F. E...	Scranton.....	D. K. E.
Harry George Lee.....	C. E...	East Orange, N. J.	134 M.
Robert Lorne Logan.....	L.....	Oil City.....	Sigma Chi.
Clarence Dickison Long.....	L.....	Traymore.....	94 McK.
Hobson Thomas Long.....	C.....	Philadelphia.....	83 N.
William James MacAvoy†.....	C. E...	Hazleton.....	19 S.
Russell Atcheson McCachran..	C. E...	Newville.....	90 N.
Carlton Shelhart McHenry...	L.....	Danville.....	82 N.
Harry Maue.....	C. E...	Hazleton.....	19 S.
Charles Pomp Maxwell.....	C.....	Easton, 14 Chestnut Terrace.	
Wilson Isaac Miller.....	C.....	Easton....	315 McKeen St.
Arthur Clemens Morgenstern..	C. E...	Easton.....	Home.
Henry Clay Mutchler†.....	C. E...	Easton.....	829 Ferry.
Louis W. Myers†.....	G. S...	Closter, N. J.	Sigma Chi.
Francis Paul O'Brien.....	C.....	Wilkes-Barre.....	35 S.
Walter Gray Peters.....	E. E...	Bushkill.....	D. K. E.
Anson Samuel Pollock†.....	E. M...	Antrim.....	146 P.
Robert Liddle Porter.....	E. M...	Clearfield.....	75 K.
Charles Nelson Reading, Jr....	C. E...	Frenchtown, N. J.	137 F.
Chester Howe Rice.....	L.....	Easton.....	125 Ferry.
Halsey Darius Rogers†.....	C. E...	West Hampton Beach, N. Y.	134 M.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Clinton Joseph Ruch	C	Lower Saucon	46 S.
Earl Clifford Sandt	Ch	Easton	221 McCartney.
Henry Karl Sangree	C	Easton	138 Bushkill.
James Kenneth Satchell	Ch	Easton	42 S 2d.
Harry August Schmidt	C. E.	Brooklyn, N. Y.	115 McK.
Elmer Bonnell Severs	E. E.	Philadelphia	95 McK.
George Nash Shaeffer†	Ch	Lockport, N. Y.	T. D. Chi.
Aaron Boyer Shimer	C. E.	Easton, Cor. 15th and Washington.	
James Howard Smith	C	Berwick	147 P.
Roscoe Lee Smith	C. E.	Berwick	147 P.
Oliver Smith Styer†	C. E.	Burlington, N. J.	89 N.
Arthur White Sullivan	L	Oak Park, Ill.	T. D. Chi.
Francis William Sullivan	L	Oak Park, Ill.	T. D. Chi.
Luther Ross Turner	C	Westgrove	64 B.
Eugene Henry Uhler	C. E.	Stockertown	Home.
Ellis Whitfield Wade†	E. E.	Hackettstown, N. J.,	88 N.
Herbert Forrest Walter	C	Easton	479 Delaware.
John Howell West	L	Easton	26 S. 5th.
Richard Samuel Whitesell	C	Easton	700 Walnut.
Andrew Jackson Wight	C	Perth Amboy, N. J.	121 McK.
John Forest Williams	C	Martin's Ferry, O.	110 McK.
Cyrus Hamlin Williston†	Ch	Phillipsburg, N. J.,	609 S. Main.
Henry Tissington Wootton†	C. E.	Boonton, N. J.	116 McK.
Samuel Duncan Wylie†	C	Shippensburg	113 McK.
JUNIORS			92

SOPHOMORE CLASS, 1909.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Joseph Anton Albrecht†	L.	New York, N. Y.	62 B.
Fred Bicknell Atherton	Ch.	Scranton	133 M.
Ennis Winthrop Bachman	L.	Orange, N. J.	128 M.
Otis Tiffany Barnes	C.	Philadelphia	D. K. E.
Arthur Mason Baum	C.	Easton	—
Howard James Bell	C.	Auburn, N. Y.	231 Cattell.
Remsen Du Bois Bird	C.	Rondont, N. Y.	85 N.
Harold McDaniel Brown†	G. S.	Elizabeth, N. J.	78 K.
William Eustis Brown	L.	Boonton, N. J.	170 E.
Gilbert Van Campbell†	E. E.	Brooklyn, N. Y.	77 K.
Marvin Clarence Carter	Ch.	Scranton	102 McK.
Harold Russell Chidsey	C.	Easton	Home.
John James Colt†	G. S.	Northumberland	—
Herbert Terry Conklin†	C. E.	Patchogue, N. Y.	23 S.
Paul Nelson Crispin†	C. E.	Phillipsburg, N. J.	94 S. Main.
George Darsie†	G. S.	Pittsburg	T. D. Chi.
William Walker Darsie†	E. M.	Pittsburg	T. D. Chi.
Frank Berlin Davenport†	C. E.	Wilkes-Barre	601 High.
Harry Gardner DeWitt	C. E.	Scranton	133 M.
Lincoln Cook Dodge	C. E.	Hazleton	115 McK.
David Reed Edwards	C.	Chatham, N. J.	44 S.
William Moodie Evans†	C. E.	Syracuse, N. Y.	T. D. Chi.
Clarence Edward Fee†	L.	Bombay, India	114 McK.
Howard Walker Fields†	C. E.	Media	115 McK.
Nathaniel Rue Foster	C.	Imlaystown	152 P.
Frank Andrew Gehr	C.	Greensburg	91 McK.
John Wagener Green	C. E.	Easton	Pierce & McC.
William Henry Hartzell	C.	Easton	R. F. D. 5.
Charles McChesney Hutchin- son†	C. E.	Trenton, N. J.	86 N.
Robert Harris Hutchison	C.	Malvern	169 E.
Richard Johanknecht†	C. E.	Rock Castle, Va	80 N.
Addison Leslie Jones	E. E.	Easton	834 Northampton.
Paul Jones, Jr.	L.	Hatboro	65 B.
Robert Conrad Kay	G. S.	Pittsburg	D. K. E.
Mahlon Bunting Knowles	C. E.	Yardley	114 McK.
Walter John Kocher†	C. E.	Easton	Bushkill.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
William Stanley Lanterman	E. M.	Easton	231 Bushkill.
Thomas Ridgway Lathrope	L.	Carbondale	118 McK.
Joseph G. Lear, Jr.	C.	Lambertville, N. J.	64 B.
Lasley Lee	C. E.	Carbondale	118 McK.
Frank Hili Lerch, Jr.	Ch.	Easton	Home.
Alvah Rufus McLaughlin	L.	Dunmore	155 E.
Albert Ralph McMeen†	E. M.	Mifflin	70 B.
Ellery Dolson Manley	L.	Elmira, N. Y.	T. D. Chi.
Charles Frederick Maxwell	C.	Greensburg	98 McK.
Clifton Pool Mayfield	C. E.	Washington, D. C.	78 K.
Percy Ellwood Mebus†	C. E.	Easton	119 S. 9th.
George Franklin Metz†	E. E.	Hazleton	159 E.
Edward Archibald Mewhinney	C.	Easton	415 Valley.
Samuel John Mills	C.	Chefoo, China	62 B.
Ralph B. Mitchell†	E. M.	Plains	Sigma Chi.
Harry Worthington Mixsell	C. E.	Phillipsburg, N. J., 163 Washington.	
Edward Corbin Moore†	E. M.	Flushing, N. Y.	107 McK.
Harold Stephenson Newins	L.	Patchogue, N. Y.	80 N.
John Allen Nightingale	L.	Easton	338 Spring Garden.
Alvin Clyde Nolf	E. E.	Easton	241 Bushkill.
Joshua T. Paxson†	C. E.	Dreshertown	65 B.
Howard Kent Preston	C. E.	Trenton, N. J.	82 N.
Silas Swallow Riddle	C. E.	Bloomsburg	601 High.
John Benton Robinson†	C. E.	Academia	70 B.
Elbert Ross	Ch.	Bangor	158 E.
William Crosby Ross	C.	Wilmington, Del.	85 N.
Robert Amandus Sandt	E. E.	Easton	412 High.
Ralph Percy Schelly	Ch.	Phillipsburg, N. J., 80 S. Main.	
Adolph Philipp Schneider	E. E.	Honesdale	153 E.
Carl Frederick Schoen	Ch.	Scranton	168 E.
Irvin Jonathan Shafer	C.	Reading	25 S.
Bert William Simpson	C.	Chicago, Ill.	161 E.
John Paul Snyder†	Ch.	Easton	126 N. 10th.
Richard Nye Merrill Snyder†	Ch.	Easton	—
Harry T. Spengler†	C. E.	Easton	Home

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Miller Didama Steever.....	L.....	Manila, Ph. Is.....	D. K. E.
Edgar Mark Troutfelt†.....	L.....	Scranton.....	167 E.
Harry Taylor Updegrove.....	E. M....	Easton.....	Paxinosa Ave.
Elmer Walker.....	C. E....	Trenton, N. J.....	—
George Franklin Walter.....	C. E....	Easton.....	R. F. D. 2.
Paul Hardtmayer Walter.....	E. E....	Pittsburg.....	—
Robert Stanley Walter.....	C.....	Easton..4th and Bushkill.	
Frank Happersett Wells, Jr....	L.....	Chester Springs.....	152 P.
Frederick Ernest Wheeler.....	C. E....	Easton.....	127 M.
Milton K. Yorks†.....	C.....	Bloomsburg.....	76 K.
SOPHOMORES.....			.81

FRESHMAN CLASS, 1910.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Harry Raymond Ackerly	Ch.	Patchogue, N. Y.	23 S.
Roscoe Hilton Aldrich, Jr.	E. M.	Allentown	100 McK.
George Frederick Alrich	C. E.	Easton. Lachenour Heights.	
Charles Eaton Anstett	E. E.	Easton	300 Cattell.
Paul Mitchell Arndt	E. E.	Phillipsburg, N. J., 3 Chambers.	
George Calvin Baker	L.	Noxen	R. F. D. 1.
George Spencer Barrett	E. E.	Atlantic Highlands, N. J., 67 B.	
Edmund Affleck Beers	C. E.	Elmira, N. Y. 230	McCartney
Arthur Isaac Beilin	C. E.	Easton. 144	Northampton
Arthur Augustus Blaicher	C. E.	Newark, N. J.	129 M.
Benjamin Poe Boyle	Ch.	Easton. 1624	Northampton.
Robert Franklin Brown	C.	Easton	R. F. D. 4
Rasselas Wilcox Brown	C. E.	Corry	106 McK.
William Caldwell	Ch.	Catasauqua	49 S.
John Cawley	G. S.	Springtown	58 S.
Edward Hart Chidsey, Jr.	Ch.	Easton	—
Andrew Milton Chalmers	E. M.	Des Moines, Ia.	400 High.
Douglas Wilson Clark	C. E.	Easton	Parker Ave.
John Boyer Cline	E. E.	Stewartsville, N. J.	Home.
Rudolph Lauer Clymer	Ch.	Phillipsburg, N. J., 320 S. Main.	
Lloyd Gamble Cole†	L.	Troy, Pa.	
Austin Hoffman Coleman	L.	Titusville, N. J.	108 McK.
John William Collier	C. E.	Easton	—
Warren John Conrad	C.	Reading	25 S.
Isidor Coons	L.	Wilkes-Barre. 228	McC'tney.
Jacob Shober Cormany	C. E.	Cincinnati, O.	—
Joseph Force Crater, Jr.	C.	Easton. 5th and Ferry.	
Wilson Crawford	E. E.	Summit Hill	175 E.
Paul Edward Cunningham	L.	Pittsburg	—
Springer Lawrence Cuning- ham, Jr.	E. E.	Pittsburg	Sigma Chi.
John Hart Dalrymple	C.	West Orange, N. J.	57 S.
Joseph Benson Darlington	G. S.	West Chester	D. K. E.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
James Shackelford Dauerty	C	Philadelphia	47 S.
Harry Davimos	L	Newark	88 N.
Samuel Kaercher Day	L	Hazleton	—
Alvan Yost Deisroth	L	Hazleton	163 E.
Paul Bennett Dick	C	Connellsville. 231	McC'tney.
William Findlay Downs	C. E.	Dover, Del.	D. K. E.
Joseph Jay Durfee	C. E.	Covington, N. Y.	13 S.
Bancker E. Duychinck	L	Rising Sun, Md	—
Henry Wilmot Eckel	C. E.	Washington, N. J.	56 S.
William Thomas Edgell	E. E.	Wilkes-Barre	14 S.
Henry M. Edwards, Jr.	C. E.	Scranton	148 P.
Chester Alexander Eichel- berger	C. E.	Everett	74 K.
Richard Fox Einstein	C	Harrisburg	128 M.
Ralph Lawrence Ely	C	Allegheny	58 S.
Alexander Kirkpatrick English	C. E.	Elizabeth, N. J.	83 N.
Milton Rutherford Evans	C. E.	Plymouth	24 S.
Albert Cecil Fairchild	E. M.	Paterson, N. J.	99 McK.
Orville Crawford Fay	C	Hollidaysburg	127 M.
Willard Russell Fehr	C. E.	Easton	150 S. 4th.
Theodore Sands Fillmore	E. E.	Shickshinny	D. K. E.
Thomas Albert Gannon	C	New York, N. Y.	—
Reuben Frank Gies	Ch.	Easton	129 S. 3rd.
William Fogg Goodwin	E. E.	Bridgeton, N. J.	47 S.
Arthur Rand Gordon	E. E.	West Hampton, N. Y., 322 McCartney.	
Jesse Grube	C. E.	Easton. 665 Spring Garden.	
Jacob Ralph Gutelius	C. E.	Mifflinburg	—
John Milton Guthrie, Jr.	C	Indiana	D. K. E.
Edward Byron Harold†	E. M.	Kearney, N. J.	116 McK.
Paul Berdan Hart	C. E.	Pennington, N. J.	136 F.
Edward Franklin Hartzell	E. M.	Allentown	135 F.
Abram Packer Hays	L	Munhall	T. D. Chi.
Edward Pruner Hayes†	C. E.	Bellefonte	—
Robert Black Herbert	C. E.	Greensburg. 131	McCartney.
Frederick Herr	L	Flemington, N. J.	39 S.
Daniel Ackerman Herrick	L	Kingston, N. Y.	50 S.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Harold Wilbur Herrick.....	E. E..	Haworth, N. J.....	69 B.
William Blake Hindman.....	C.....	Chillicothe, O.....	129 M.
Philip Schneider Hoffman, Jr .	E. E..	Raubsville.....	31 S.
Clarence William Horr.....	Ch.....	Newark, N. J....	T. D. Chi
Burton Hotchkiss.....	C. E..	Washington, D. C..	164 E.
Frank Elison Hutton.....	C. E..	Kingston, N. Y.....	51 S.
Frank Henry Irmschler.....	C. E..	Easton..	117 Spring Garden.
Thomas Cowling Jeffery.....	C.....	Pen Argyl....	147 S. 3rd.
Floyd Myron Johnson.....	C. E..	Covington.....	151 P.
John Elwyn Johnson.....	C. E..	West Chester....	117 McK.
Edward Hunting Jones	C.....	East Hampton, N. Y.,	173 E.
Albert Barnes Judson.....	C. E..	Meshoppen.....	57 S.
Albert Felix Kahn.....	L.....	Easton.....	37 S. 6th.
Arthur Emanuel Keiber.....	C.....	Drums.....	171 E.
Frank Henry Kelly.....	C. E..	Reedsville.....	148 P.
Floyd Clifton Kinnear.....	E. M..	Tidioute... 230	McCartney.
Louis Otto Kirberger.....	C. E..	Warren.....	400 High.
William Dawson Kirkpatrick..	E. M..	Chatham N. J.....	136 F.
Henry Reuben Koehler.....	C.....	Hazleton.....	163 E.
Samuel Randall Kulp.....	Ch.....	Allentown.....	Home.
William LeVan Lawfer.....	E. E..	Ailentown.....	150 P.
Harry Enders Lehr.....	C. E..	Lykens.....	166 E.
Davis Winans Lusk.....	C.....	Newark, N. J.....	116 McK.
Frederick Collier McCutcheon	C.....	Sharpsburg.....	T. D. Chi.
Michael John McGrath.....	C. E..	Worcester, Mass.....	30 S.
Robert Eton McPherson.....	C.....	New Bloomfield.....	37 S.
Walter Ingham Macauley.....	E. E..	Phillipsburg, N. J.,	607 S. Main.
Harold Rickard Mahoney.....	E. E..	Wilkes-Barre. 36	McCartney.
Harry Wilmer Markle.....	L.....	Greensburg.....	98 McK.
Frederick Stiles Martin.....	C. E..	Allentown.....	100 McK.
Willard Charles Masonheimer .	C.....	Weatherly.....	165 E.
Jesse Russell Matson.....	G. S..	Wellsboro.. 136	McCartney.
Robert Everal Mercer.....	E. E..	Pittsburg.. 136	McCartney.
Raymond Stanley Metzgar....	E. E..	Phillipsburg, N. J.,	71 Bennett

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Nathan Roy Miller	L.	Mauch Chunk	172 E.
Thomas Overfield Mitman	C.	Hellertown	.....
John Francis A. Moore	L.	Hornell, N. Y.	36 S.
Tilghman Huber Moyer	C. E.	Brooklyn, N. Y.	79 N.
Arthur Henry Myers	Ch.	Somerville, N. J.	154 E.
David Burrowes Nevin	L.	Easton	.....
John Sanford Noble, Jr.	L.	Easton	226 Porter.
Warren Arthur Norris	E. M.	Troy, N. Y.	117 McK.
Lewis Anderson Park	L.	East Allegheny	75 K.
Joseph Oliver Parker	L.	Pittsburg	T. D. Chi.
Raymond Townsend Pierson	E. E.	Belvidere, N. J.	27 S.
Walter Westcott Prior	C. E.	Trenton, N. J.	86 N.
Stewart Rice Race	C.	Cornish, N. J.	34 S.
Donald Rankin	Ch.	Scranton	328 McCartney.
David Weimer Rial	Ch.	Greensburg	Mrs. Olsen.
Howard Christian Roeder	C. E.	Allentown	Mrs. Olsen.
Frank Weimer Royer	E. E.	Greensburg	410 McCartney.
Arthur Barber Schooley	C. E.	Wyoming	122 McK.
Louis William Schwindt	Ch.	Easton —
Robert Pressly Scott, Jr.	G. S.	Butler	131 McCartney.
Harry Downes Sellers, Jr.	C.	Pittsburg	30 McCartney.
Frank Carrie Shand	C. E.	Kingston	50 S.
William Thomas Shea	C. E.	Washington, D. C.	76 K.
Russell Lewis Shepler	E. E.	Vandergrift	136 McCartney.
Joseph Albert Skeer	C.	Bloomsburg	Mrs. Ill.
Guy Fuller Smith	E. M.	Camptown	35 S.
Louis Thurston Southwick	C. E.	North Haven, Conn.	D. K. E.
Edward Augustus Spann	Ch.	Easton	117 S. 5th.
Clinton Emanuel Steinheiser	C.	Mauch Chunk	147 S. 3rd
David Lloyd Swank	E. M.	Mauch Chunk	147 P.
Philip Allen Swartz	C.	Poughkeepsie, N. Y.	87 N.
Elmer Clayton Taylor	Ch.	Cold Spring	145 P.
Reuben Archer Torrey, Jr.	C.	Philadelphia	106 McK.
Norman Clifford Uhler	C.	Easton	R. F. D. 1.
Ernest Saul Urwitz	E. E.	Wilkes-Barre	601 High.
Alexander Hamilton Voorhees	L.	Jersey City, N. J.	22 S.
Donald Williams Vought	L.	Englewood, N. J.	142 P.

NAME.	COURSE OF STUDY.	RESIDENCE.	ROOM.
Roy Irving Walter.....	C.....	Easton...4th and Bushkill.	
Gus Evans Warden.....	C. E...	Endeavor..136	McCartney.
Robert Lothrop Ware.....	C.....	Easton.....	31 S.
Arthur Trumbull Warner....	E. E...	Ridgefield, Conn.	106 McK.
Frederick Jacob Weeks.....	G. S...	West Pittston...	122 McK.
George Albert Wellman.....	C. E...	Covington.....	13 S.
Allen Connelly Whetstone....	C. E...	Everett.....	74 K.
Joseph Clifford Wilkes.....	E. E...	Trenton, N. J...	108 McK.
Harrison Jacob Wolfe.....	E. E...	Easton.....	5 S. 5th.
Charles Preston Woodnutt....	E. E...	Williamsport.....	42 S.
Joseph Henry Zerbey, Jr.....	L.....	Pottsville.....	135 F.
FRESHMEN.....			149

SUMMARY.

Courses.	Seniors.	Juniors.	Sophomores.	Freshmen.	Total.
Graduates.....					10
Classical.....	22	25	19	30	96
Latin Scientific.....	16	15	13	23	67
General Scientific.....	2	2	4	5	13
Civil Engineering.....	24	24	24	42	114
Electrical Engineering....	7	6	7	25	45
Mining Engineering.....	3	12	6	10	31
Chemical.....	5	8	8	14	35
	—	—	—	—	—
Totals.....	79	92	81	149	411

CLASSIFICATION BY RESIDENCE.

Connecticut..... 3	Maryland..... 2	Ohio..... 2
Delaware..... 3	Massachusetts... 2	Pennsylvania .. 275
Dist. of Columbia 6	New Jersey..... 73	China..... 1
Illinois..... 4	New York..... 36	India 1
Iowa 1	North Carolina.. 1	Philippine Is.... 1

ABBREVIATIONS OF ROOMS AND COURSES OF STUDY.

Brd.—Brainerd Hall.	McK.—McKeen Hall.
B.—Blair Hall.	N.—Newkirk Hall.
E.—East Hall.	P.—Powell Hall.
F.—Fayerweather Hall.	S.—South College
K.—Knox Hall.	D. K. E.—Fraternity House.
M.—Martien Hall.	Sigma Chi.—Fraternity House.
McC.—McCartney St.	T. D. Chi.—Theta Delta Chi Fraternity House

C.—Classical	E. M.—Mining Engineering.
C. E.—Civil Engineering.	G. S.—General Scientific.
Ch.—Chemical.	L.—Latin Scientific.
E. E.—Electrical Engineering.	

† Partial course ; not candidates for a degree.

‡ Permitted to recite ; constructively not candidates for a degree.

—Absent at time of publication of catalogue.

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